

PURCHASING BEHAVIOR OF PERSONAL COMPUTERS  
IN HONG KONG

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## ABSTRACT

The objectives of this Research project are to estimate the market potentials for the next three years and, understand the purchasing behaviors of the potential buyers of personal computers. We hope to provide important information in this area to the local marketeers so that they can better compete in this fast growing industry. Effective competition may mean better service to the buyers, thereby, promoting the development in the personal computer market.

The followings are the findings from our study:-

1. Market Potential: A potential of about 61,000 units of personal computer is estimated for the next three years in Hong Kong representing approximately six times the estimates conducted by one study in 1982.
2. Personal sources of information are more important to satisfy the information requirements of the potential customers.
3. Reliability of computers is regarded as the most important criterion to evaluate the purchase decision.
4. "Self development" is considered to be the more important benefits derived from the use of personal computers, and, intangible benefits like "prestige" and "my friends/other companies have one" are less important.



5. The main reasons for not buying are "have one already" and "do not need one".
6. More than 75% of respondents report that they will recommend their existing brands of personal computers to other people, whereas, only 23% of them will buy the same brand themselves in the future.
7. Business and Professionals do not report significant difference in their attitudes towards information search, evaluative criteria and derived benefits.
8. There are some difference in opinion among the various professionals subgroups in the various attributes of purchasing behaviors.
9. Users and Non-users report some difference in opinion in the various attributes of purchasing behaviors.



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## PREFACE

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## CHAPTER I

### INTRODUCTION

The 1980s saw a rapid growth in personal computer introduction into the market. Prior to this, we saw only small independent marketeers, like Apple, Atari, Radio Shack and Commodore, who concentrated themselves in this area. They were so successful as to wake up the computer giants who begin to recognize that personal computers will be one of the fastest growing areas in the information industry. Therefore, in 1981, we saw the introduction of new products from major computer companies such as IBM, Xerox, DEC and others as well as Japanese manufacturers like NEC, Toshiba, Fujitsu, and, even Seiko.

Take IBM as an example. Prior to 1981, IBM has virtually no share in this personal computer markets. With the introductions of the IBM Personal Computer (PC), the PC Junior (or peanuts) and the recently announced Portable PC, she puts herself in a position to occupy approximately 30% of this fast growing market from a share of zero in 1981. This incredible record does not come without reasons. The introduction of the personal computers also signified a significant change in marketing practices of this "Big Blue" in the industry who was generally thought to be inflexible or rigid in their marketing strategies.



New marketing channels like dealers, product centers etc, aggressive advertising campaign featuring the famous Charles Chaplin and close cooperation with independent Software and Service Organizations (SSO) are difficult to be imagined as IBM's marketing practices in the pre-personal computer era. This greatly signified the emphasis on customer orientation by IBM.

Having seen the successful example, it is not hard to find examples of failure. Take the Texas Instrument as an illustration. She has introduced her personal computers together with others. However, their personal computer marketing was proven to be a failure. Another example will be the Apple Lisa and Apple III. The company has been successful in launching her Apple I and II models. But much against the common expectation, the new Lisa and Apple III were not regarded as successful. Although the newly announced Macintosh by the company is the most recent effort by the company to try to revert the failure, the preceding failure should be studied to prevent future happening.

As can be seen by these several examples, the personal computers market is highly competitive.

Although it was recognized as one of the most lucrative markets in the 80's, surviving in this market is not an easy thing. The rapid new product introduction should be reinforced by customer-oriented marketing strategies in order to be successful. This research project studies the purchasing behavior of personal computers to enable marketeers to better design marketing strategies in order to survive in the highly competitive market.



## Definition Of A Personal Computer

A personal computer, as it is defined here, is a microprocessor with some memory, an operating system, a keyboard, a video Display (or presence of a modulator for a television set); all packaged in a conventional unit to be used in the home, school or small business directly by one or more persons. Typically, such a personal computer sells for HK\$5,000 to as much as HK\$60,000 depending on capabilities.

## Personal Computer Market in Hong Kong

Prior to 1981, there are relatively little activities in the personal computer market area. Earlier marketeers like Apple, Atari, Commodore and Radio Shack are competing themselves for applications like games, simple education applications and limited business applications. The transaction volume was low. Since then, the personal computer market in the U.S. has grown rapidly. Being aware of that, major computer manufacturers start to launch their new products worldwide including Hong Kong. Now, all major personal computer manufacturers have their presence in Hong Kong. The early applications are games and, planning packages like Visicalc<sup>1</sup>. Application programs that were developed all over the world are immediately available to users in Hong Kong. The recent introduction like Time Manager<sup>2</sup>, Dow Jones<sup>TM</sup> \* Reporter<sup>3</sup> etc are just a few of the many.

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<sup>1</sup> Visicalc - is a trademark of Visicorp

<sup>2</sup> Time Manager - is a trademark of the Image Producers, Incorporated

<sup>3</sup> Dow Jones<sup>TM</sup> \* Reporter<sup>3</sup> - is a trademark of Dow Jones & Company, Incorporated



Furthermore, the introduction of Office Automation concepts by major computer manufacturers put the personal computers into yet another significant role. In that, they serve as "terminals" or "windows" to the central mainframe system of large companies. Technology advancement like Local Area Network (or LAN) greatly enhanced development in this area.

Another observation from the personal computer market is the trend towards Chinese language processing. In the traditional Import/Export or Chinese companies, the role of Chinese processing is important as some of their business partners still stick to Chinese as their medium of information exchange. Traditionally, the input/output process of Chinese information is both clumsy and difficult. The innovative use of the "Chinese Character Generation" as a simplified input method is a unique feature found in most major Personal Computers in this part of the region. This will further accelerate the market growth.

Just looking at these exciting development over a relatively short time frame can give us a fair picture as to the importance of studying the marketing characteristics of this fast growing market.

#### Previous Studies In This Area

A lot of studies have been conducted relating to personal computer market outside of Hong Kong but relatively few had been done locally.



We would, however, like to reference the research findings done by Mr. Cheong Kam-To and Mr. Yee Po-Kui<sup>1</sup> as a starting point. Part of our questionnaire is structured in identically as theirs so as to ensure that a longitudinal analysis be possible between their study in 1982 and ours. We think this will provide fruitful information to us in understanding the change in environment over time. We would stress the importance of a local study for local marketeers because we believe that the buying motives of Hong Kong people will be different from other parts of the world. In order to successfully market to the local community, the marketing strategies should be designed to fit the local environment instead of following those from United States, say.

### Purpose of the Research

As noted above, in order to be competitive in this fast expanding market place, one of the most effective way is to understand the purchasing behaviors of your target customers. It is towards this end that our research project is aiming at. The areas of interest are as follows:-

- i) Information survey - the sources to which our target customers will turn to for enriching their information base prior to the actual purchase of the product. This has significant implications to the promotion and channel strategies to our fellow marketeers.

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<sup>1</sup> Cheung, K.T., Yee, P.K. - " The Market of Personal Computers in Hong Kong". Hong Kong: The Chinese University of Hong Kong, 1981



- ii) Evaluative Criteria - the standards to which our target customers will be using in deciding on which brand name to choose. All our product, price and channel strategies have something to do with this.
- iii) Product Benefits - the justifications to which our target customers will base on. This will provide great insights to our products and promotional strategies.
- iv) Market potential - the size of the market place in which personal computer marketeers will be sharing. This provides information to marketeers in setting their targets and priorities.
- v) Decision Structure - the decision process of potential customer with which marketeers will be dealing with. Selling techniques can benefit a lot from the understanding of this area.
- vi) Brand Switching Behavior - the loyalty our customers will place on a specific brand may call for different marketing approach to new prospect and existing customers.

This research project is being conducted to provide accurate marketing information to local marketeers. Aside from this, it is also the purpose of this paper to arouse the interest of local market researchers to concentrate on this fast growing market. Local marketeers can better benefit from active researchs within this area. Using the results from these studies, they can further sharpen their marketing "weapons", which, in turn, can stimulate the expansion of this very significant market place.



## Summary

In the following chapter captioned as methodology, we would present how the research is done, content of which includes definition of target population, Sampling method, data collection, questionnaire design, and finally the method of data analysis.

Data collected from questionnaire are summarized. Findings as of how potential customers will search for information prior purchasing personal computers, their ranking on evaluative criteria; the benefits they seek from using them; reasons of not buying, their decision structure; brand name possession and brand switching behavior are detailed out. The difference between professional subsample and business subsample in the above mentioned areas are also discussed. Concluding each section in chapter three are the comparison between result of previous study and that of the current research.

Facts gathered in Chapter III are analysed and interpreted in a marketing context. Results of analysis will be used as the basis of giving recommendation in the last chapter in terms of marketing strategies, like product, pricing, promotion, channel and sales force.

Between Chapter IV and VI, there is an insertion of a relatively short chapter namely, Interview Findings. Purpose of which is to get a feel of the purchasing behavior of personal computer from a different perspective. Practicing marketeers opinion is sought to reinforce and counterprove the research findings.

## CHAPTER II

### METHODOLOGY

#### Target Population

As defined in Chapter I, we shall be concentrating our efforts in the local market. Local market means all areas in Hong Kong including Hong Kong Island, Kowloon Peninsula, New Territories and the surrounding Islands. Our theoretical customers will be all people within the territories having the potential of buying a personal computer under our definition in Chapter I.

However, for the sake of simplicity so that the project can be more manageable, we have restricted ourselves into the major categories of the potential population. They are professionals and business communities.

#### Professionals

The professionals under studied are as follows:-

- Accountants
- Computer Personnels
- Engineers
- Lawyers
- Physicians



- Students
- Teachers

There are, of course, other professionals like general business executives, who are excluded from the research. We believe the buying behaviors of the business executives are likely to be reflected through the result of our study on the business sector (to be dealt with in the following paragraph).

### Business Sector

Here, we shall be concentrating ourselves to the small to medium size companies for which the decision structure is much simpler. Large corporations are likely to have a different approach to installing personal computers which is difficult to be included in this project. For example, personal computers in large corporations, are generally treated as part of the total corporate office automation system. In this kind of environment, personal computers will be placed in a less significant role. They are only a small part of the total project, and, the evaluative criteria of purchase will be related to the office automation project feature rather than that of the personal computers themselves.

### Population Size

With the above definition of our target customers, the total population size can be estimated from various sources. The result of such is summarized in TABLE 1 & 2.

TABLE 1

POPULATION SIZE OF PROFESSIONALS

Category	Estimated Numbers*	Main Affiliation
Accountant	8,000	HK Society of Accountants
Computers Professional	1,500	HK Computer Society
Engineer	5,000	HK Institute of Engineers
Lawyer	1,200	Law Society of Hong Kong
Physician	3,400	HK Medical Association
Student	36,000	University of Hong Kong
		Chinese University of Hong Kong
		Hong Kong Polytechnics
		Hong Kong Society for Mathematics and Science Education
Teacher	3,800	
Total	58,900	

Source: Based on Hong Kong Fact Sheet from the HK Government  
Information Service Department or estimates from main affiliations.



TABLE 2

## NUMBER OF ESTABLISHMENTS IN VARIOUS BUSINESS SECTORS

Business Sectors	Number of Establishment
Manufacturing	47,181
Wholesale, retail, Import/Export Trade	11,072
Finance, Insurance, Real Estate and Business Services	13,738
Total	71,991

Sources: Hong Kong Monthly Digest of Statistics June 1983

Hence, the various sub-populations add up to a total of 130,891 individuals/establishments.

### Random Sampling

Given a population size of approximately 131,000, a complete survey or census is prohibitive in consideration of time, cost and manpower. In that case, random sampling is employed in this study as it is believed that representative units drawn from the population at random will permit generalization from its findings within acceptable limits of doubt. Also, costs are minimized (of design and execution) thus giving us an efficient sample.

### Sample Size

Sample size in no way affects inaccuracy which are actual non-random errors like misunderstandings between respondents and interviewers, miscoding of answers, coding and editing errors, computer programming errors to note a few. However, imprecision diminishes in inverse proportion to the square root of the sample size. In terms of added precision, the marginal utility of larger sample sizes diminishes rapidly and there is no marginal utility at all with respect to accuracy. In general, sample size is constrained by its cost involvement and the feasibility in administration. For the purpose of our study, we have picked a sample size of approximately 240.

### Data Collection

Among various data collection methods, namely telephone interview, personal interview and mail survey, we have chosen the last method for the following reasons:



1. Wider distribution

Theoretically, every entry on the mailing lists can be reached by post.

2. Less Distribution bias

No favoritism towards a certain neighbourhood, type of family or type of individual which would happen in personal interview.

3. Less interviewer bias

4. Better likelihood of thoughtful reply.

5. Time saving

It would be impossible to administer 240 personal interviews which will possibly take a few hundred hours.

6. Cost saving

Saving in terms of actual cash spend and interviewer's time would result in more productivity per dollar spent.

### Dispatch Method of Questionnaire

First of all, mailing lists are gathered from the societies/associations with which the professionals are attached. The mailing list for business

sectors are bought from the direct mail company which provide various kind of mail list at a reasonable cost.

Questionnaires are mailed out to the target population by post with pre-paid reply envelope to solicit a higher response rate.

### Interviews with Dealers and Manufacturers

The purpose of the interviews is to confirm with the interviewers the findings we have got from our study as well as obtaining insights from them on the interpretations on some of our findings.

The companies interviewed included a dealer and a manufacturer. The dealer is Dodwell Business Machiens Division which has experience as an agent to various personal computers like Commodore<sup>1</sup> and IBM PC<sup>2</sup>. The other is an international manufacturer which has requested us not to disclose her name. However, her personal computers are one of the most popular brands in the local market place. Extensive dealer networks are set up in Hong Kong in the hope of capturing a sizeable share of the market.

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<sup>1</sup> "Commodore" is a brand name for personal computer

<sup>2</sup> "IBM PC" is a brand name for Personal Computer for  
International Business Machines Corporation



### The Questionnaire Design

The questionnaire is the main tool of data collection. The questions therein are so designed that the required information can be solicited from the respondents. In order to generate a better response rate. The following tactics are employed:

1. Questions are short, straight forward and easily understandable.
2. It takes less than five minutes to complete the questionnaire.
3. Prepaid reply enveloped is enclosed.
4. Letter head of three year MBA programme, CUHK is used.
5. Cover letter is also signed by the advisor.
6. Brief instructions are given on questionnaire to avoid possible confusion in filling out the questionnaire.

### Pilot Test

Two questionnaires are designed for the two categories of the target group. Contents of which are basically the same with only slight modifications. One copy of each is exhibited in Appendix B. The questionnaire has been testified before it is distributed for data collection purpose. The following demerits are detected and are rectified in the final draft of questionnaire:

1. The ranking method of both question 1 & 2 are not clear.
2. Sequence of questions is confusing.
3. Wording used are not precise and well-defined.

### The Questionnaire

The questionnaire consists of twelve questions in the version for professionals and eleven questions in the version for business entities. Both questionnaires are despatched with a cover letter. There are altogether three pages for a copy of questionnaire including the cover letter. (See Appendix B)

Respondents are given the option of getting a summary of findings if they are willing to provide us their name and address at the space given at the end of the questionnaire.

### Analysis of Data

Throughout the analysis, tabulation and F-test at a confidence level of 95 are the only two tools used in this study. All the data are obtained from the answers to the questionnaires as shown in Appendix B.

The data will be separated into categories. In the first place, professionals will be analysed separately from business communities since we believe that there will be difference in the various attributes between



the two. F-test will be used to confirm our understanding. Among the professionals, the various professional subgroups will be identified individually to see whether there are possible segmentation. Again F-test is the supplementary tool used. The implication is that we may need to use different marketing strategies on different professional subgroups should there be any significant difference between them. Finally, question 6 in our questionnaire captures the information to determine whether the respondents are existing user of personal computer or not. Again, comparisons between users and non-users on various attributes are conducted.

The flow of the questionnaires follows that of the Multimediation model of customer behavior<sup>1</sup>. Question 1 deals with information search on the purchase of personal computer. Means will be used to calculate the ranking of importance for each information source. Besides the tabulations on the various major categories described above, a comparison of findings between ours and Cheung and Yee's study<sup>2</sup> is also included to show the change in information source from 1982 to now.

The evaluative criteria for buying a personal computer and benefits expected from the use of such are dealt with in questions 2 and 3. Similar analyses are done as above.

Question 4 infers the market potentials of personal computer in the next three years.

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<sup>1</sup> Engel, J.F., Kollat, D.T. Blackwell, R.D. Consumer Behavior. Illinois: Dryden Press, 1973, P.58.

<sup>2</sup> Cheung, K.T., Yee, P.K. The Market of Personal Computer in Hong Kong. Hong Kong: The Chinese University of Hong Kong, 1981.



Understanding the reasons for not buying, marketeers can do a self-evaluation to see whether they can improve on to physically raise the ceiling of the estimated market potential. This information will be provided by question 5.

Questions 7, 10 & 11 deals with the brand switching/loyalty issue whereas questions 8 and 9 provide the cues to the decision structure of the potential clients.

### Use of IBM APL Statistical Library System

For the purpose of analysis, the IBM APL and the APL STATLIB system will be used for analysis. It is an interactive system providing us the right facilities in a simple and easy-to-use manner. In addition, the APL language enables us to do some additional analysis through writing some simple "programs". This system will, therefore, use wherever possible throughout this research project.

### Summary

Methodology chosen in this research project can only be regarded as the "most appropriate" in view of a number of practical constraints and is, of course, far from perfect. For example, decisions on target population, sample size are rather arbitrary and are so defined that it would confine the generalizing ability of the research finding to a small segment of the personal computer market. The data collection method of mail survey is evaluated, among various alternatives, as the most feasible one. Given a different set of parameters, the data collection method can be expanded and fine tuned to give more accuracy and precision to the findings.



Every effort has been given to perfect the design of questionnaire. Questions incorporated in it are deemed to be sufficient to serve the purpose of this research. How the data are to be analysed, to a certain extent, depends on how the questions are structured and formulated. More sophisticated technique, like the MDS (multidimensional scaling) can be employed in future attitudinal or behavioral study should more resources are available.

## CHAPTER III

### SURVEY FINDINGS

#### Questionnaire Collection and Validation

A total of 240 completed questionnaires were collected in which 6 of them are rejected. Two of them were rejected because they said that they will buy a personal computer in the next three year (question 4) and also stated their reasons for not buying (question 5). The other four did not have a personal computer in their home or office (question 6), but started to fill in the brand names of their personal computes and/or response to the brand switching behaviors questions (questions 7-11). As a result, 234 respondents were included for the purpose of this research project.

#### Generation of Study Dimension

Prior to our discussion of the survey findings, the following is a general briefing on how the dimensions/criteria in each question are selected:

As a starting point, reference is made to the questionnaire being used in previous marketing studies in personal computers market. Those dimensions that are still valid and relevant will be taken out and enter the master list of "dimensions" for the later selection of dimensions. Periodicals and magazines with subject matter of personal computers are also used as the sources of generating dimensions/evaluative criteria.



In addition to literature research, opinion of both user/non-user of personal computers, representing the consumer's point of view and that of personal computer Manufacturers/dealers, representing the manufacturers' perspective, are sought to enrich the master list of "dimensions". The former is done in the form of focus group interview whereas the later took the form of personal interview. Dimensions generated from various sources are compared. Those dimensions having high consensus, i.e. they are being quoted by more than two sources, are selected and used in our questionnaire. The rest of this chapter are the summary of survey findings on how potential personal computer customer view the various dimensions/evaluative criteria.

### Information Search

#### Professionals Subsample Versus Business Subsample

There are five information sources included in the questionnaires, namely, "Your friends", "Television", "Trade Magazines", "Newspaper", and "Dealer Display Center". The overall ranking of the information sources can be seen from Table 3 below.

TABLE 3

## OVERALL RANKING ON IMPORTANCE OF INFORMATION SOURCES

Information Source	Professionals Sub-Sample	Business Sub-Sample	Whole Sample
Your Friends	1	1	1
Dealer Display Center	2	2	2
Trade Magazines	3	3	3
Newspaper	4	4	4
Television	5	5	5

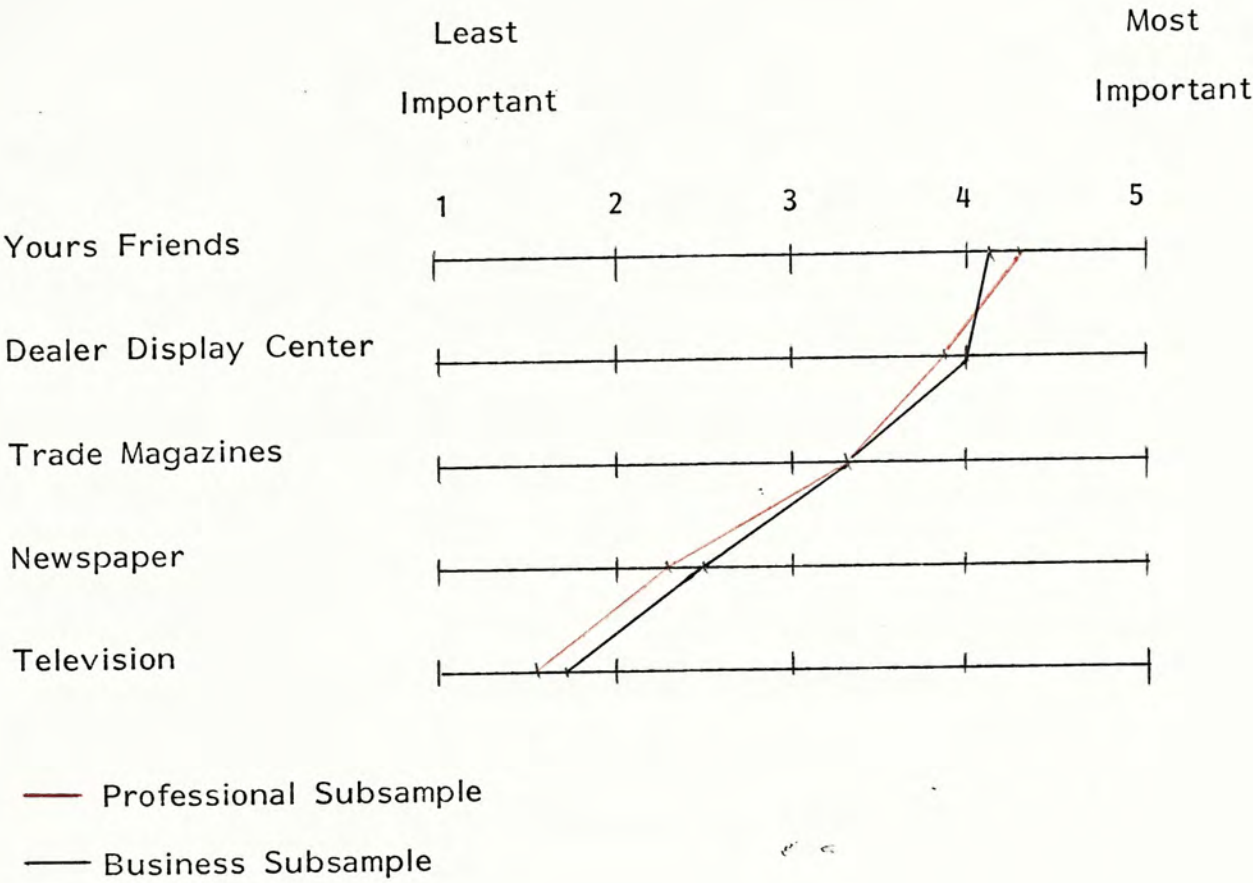
Both subsamples rank "Your Friends" as the most important source of information followed by "Dealer Display Center". These two are the only two "personal" sources within the list. The remainings, in order of ranking, are "Trade Magazines", "Newspaper" and "Television" which are characteristics of mass media or impersonal sources.

The mean ranks of each information source for both samples are illustrated in Exhibit 1. Again there is little variation among the two groups in all information sources.



EXHIBIT 1

MEAN RANKING OF INFORMATION SEARCH BETWEEN  
PROFESSIONAL SUBSAMPLE AND BUSINESS SUBSAMPLE



Professional Sub-sample

The overall rankings of the five information source are shown in Table 4 below. These rankings are derived from means rankings of each attribute shown on Table 5 of Appendix A.

There are variations among the group, but all possess the commonalities that personal sources of information like "Your Friends" and "Dealer Display Center" are ranked either 1 or 2. It seems that "Your Friends" stands out as the most important source in most cases. Even in the cases of Accountant and Computer Professional who, presumably, are more knowledgeable on the subject.

TABLE 4

OVERALL RANKING ON IMPORTANCE OF INFORMATION SOURCES  
BY VARIOUS PROFESSIONAL SUBGROUPS

Information Sources	Accountant	Computer Professional	Engineer	Lawyer	Physician	Student	Teacher
Your Friends	2	2	1	1	1	1	1
Dealers Display Center	1	1	2	2	2	2	2
Trade Magazine	3	3	3	3	3	5	3
Newspaper	4	4	4	4	4	3	4
Television	5	5	5	5	5	4	5



The mean rankings of "Your Friends" (see TABLE 5 - Appendix A, are closed to those of the "Dealer Display Center". "Newspaper" and "Television" seem to be less important sources of information. In no case can we find a scoring of 3 or more in the five point scale for these two sources. "Trade Magazine" seems to be a fair source of information as rated by most respondents.

### Users Versus Non-users

A user here is defined as a "Yes" response to the question "Do you have a personal computer?" (question 6). Depending on the response to this question, the respondents are divided into two sub-groups for each of the business and professional sub-samples.

#### Business Subsample

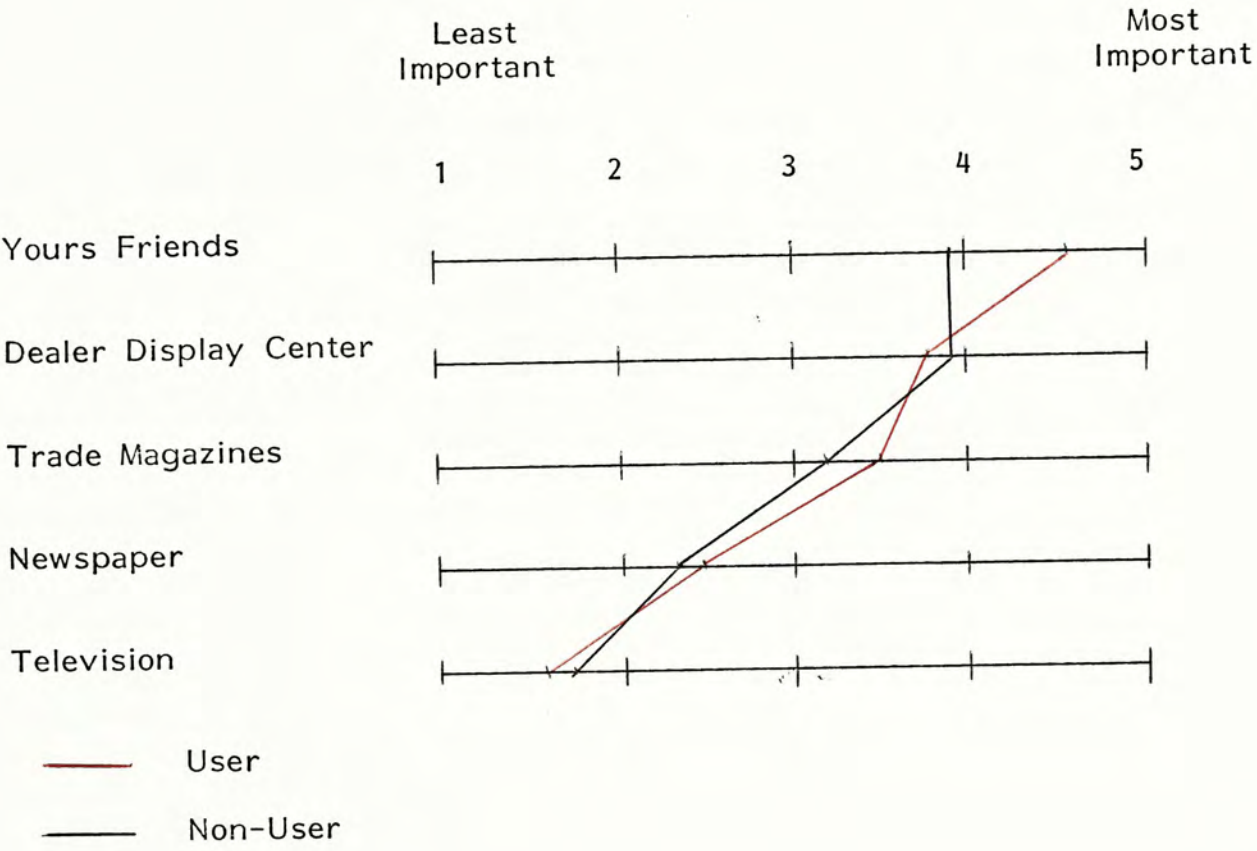
Look at Exhibit 2, the personal source of information ("Your Friends" & "Dealer Display Centers") are more important than the other sources. However, in the case of users, "Your Friends" is comparatively more important than the case of non-users.

#### Professional Subsample

The pattern is quite similar with each other, and, in line with the findings of other sub-samples. (Exhibit 3)

EXHIBIT 2

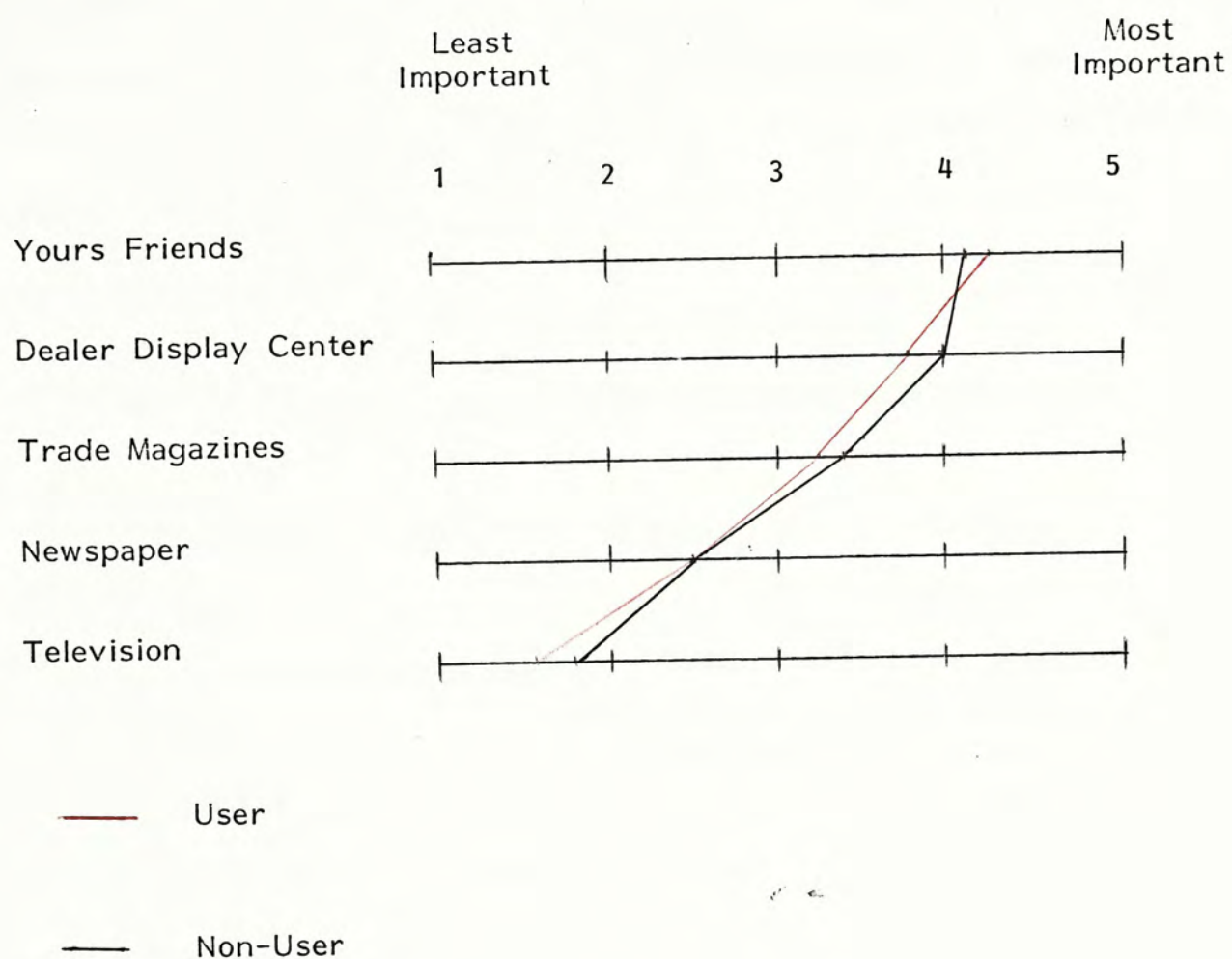
MEAN RANKING OF INFORMATION SOURCE BY USERS AND  
NON-USERS OF THE BUSINESS SUBSAMPLE





## EXHIBIT 3

MEAN RANKING OF INFORMATION SOURCES BY USERS AND NON-USERS  
OF THE PROFESSIONAL SUBSAMPLE



Evaluative Criteria

Professional Subsample Versus Business Subsample

There are altogether 11 criteria listed in the questionnaires so that the respondents can rank their importance in a 5-point scale. Table 6 below summarizes the overall ranking on the criteria by the two sub-samples.

TABLE 6  
OVERALL RANKING COMPARISON BETWEEN PROFESSIONALS  
&  
BUSINESS SUBSAMPLES ON EVALUATIVE CRITERIA

Evaluative Criteria	Professional Sub-sample	Business Sub-sample	Whole Sub-sample
Reliability of Machines	1	1	1
Easy-to-read User Manuals & Training Materials	2	2	2
Good After Sales Services	2	3	2
Ease-of-operation	2	3	4
Low Cost	5	5	5
Good Upgrade Path	6	6	6
Plenty of Industry Application Programs Available	6	7	7
Good Dealer/Vendor Reputation	8	7	8
Excellent Demonstration	9	9	9
Capable of Communication to Central Computer	10	10	10
Chinese Capability	11	11	11

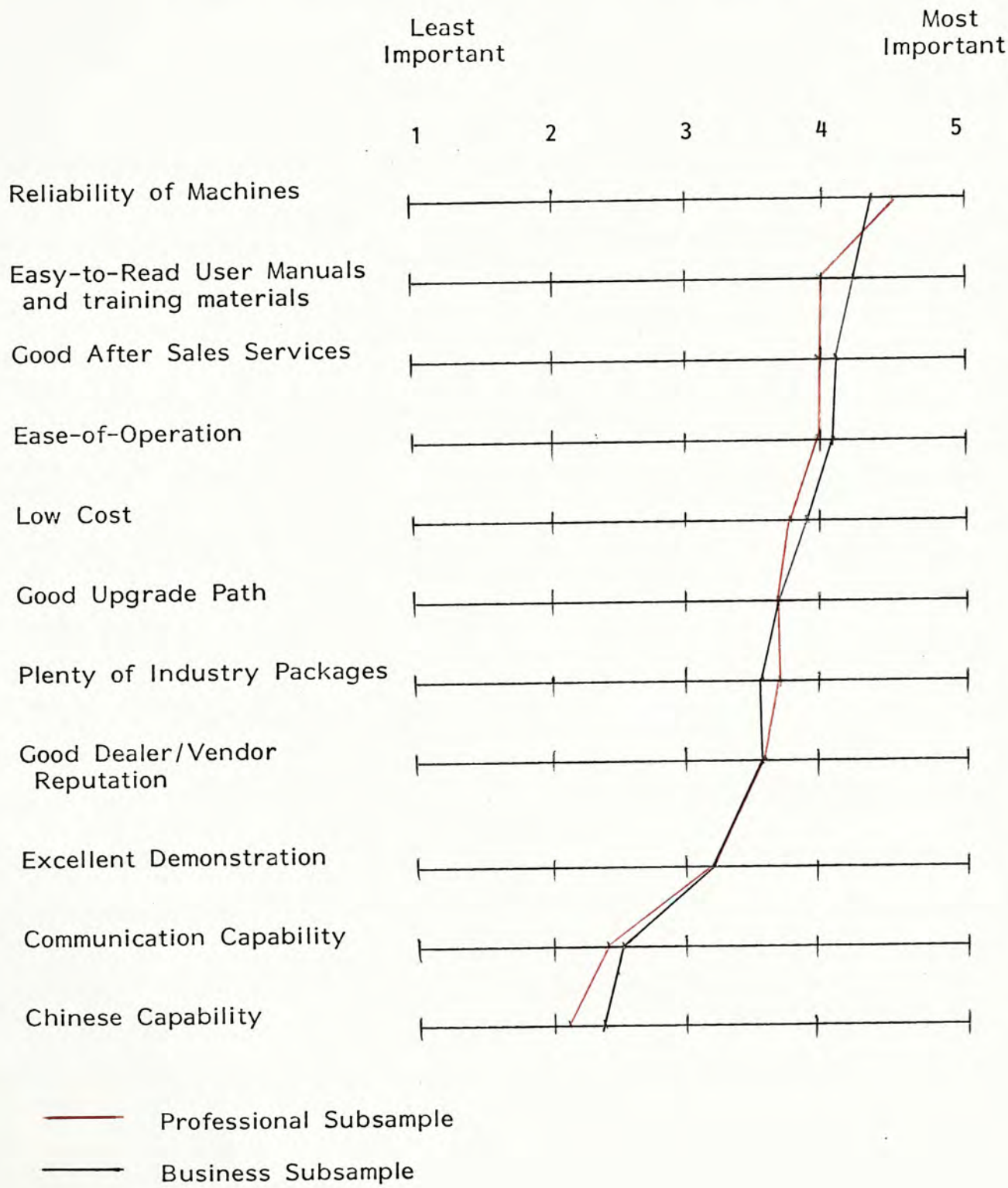


As can be seen, the order of ranking seems to agree between the subsamples. "Reliability of Machines", "Easy-to-read user manuals & Training materials" and, "Ease-of-Operation" appear to be the more important criteria among the respondents. "Capable of Communication to Central Computer" & "Chinese Capability" are the two least important criteria among the respondents in the process of evaluating the suitability of personal computers.

Exhibit 4 shows a comparison in mean ranking between the two subsamples. If we take "3" as a cutting point, the first nine criteria are deemed quite important to the purchase decision of a personal computer. As a matter of fact, the nine criteria are clustered in a mean ranking range of 3.2 to 4.5. The only two "out-of-line" criteria are "communication capability" and "Chinese Capabilities" as reported by our respondents. Another interesting phenomenon is that the two agree on the relative ranking of all the evaluative criteria.

EXHIBIT 4

MEAN RANKING ON IMPORTANCE OF EVALUATIVE CRITERIA BETWEEN  
PROFESSIONAL AND BUSINESS SUBSAMPLES





Professional Subsample

The relative ranking of the eleven evaluative criteria among the professional groups are summarized below in Table 7.

TABLE 7

COMPARISON OF RANKING AMONG THE DIFFERENT PROFESSIONAL GROUPS  
ON EVALUATIVE CRITERIA

Evaluation Criteria	Accoun- tant	Computer Profess- ional	Engi- neer	Lawyer	Physi- cian	Student	Teacher
Reliability of Machines	1	1	1	1	2	2	1
Easy-to-read user manuals & training materials	4	3	5	2	3	1	3
Good after Sales Services	2	3	6	2	1	2	4
Ease-of-Operations	4	2	4	4	6	2	2
Low Cost	8	5	2	10	3	7	4
Good Upgrade Path	2	7	6	6	7	9	4
Plenty of Industry Package	6	6	3	7	8	5	7
Good Dealer/ Vendor Reputation	6	7	8	8	3	7	8
Excellent Demon- stration	9	9	9	4	8	6	9
Communications Capability	10	10	10	9	11	10	10
Chinese Capability	11	11	10	11	10	10	11

The ranking in Table 7 is derived from the mean ranking as presented in Table 8 of Appendix A. As can be seen, "Reliability" stands out as the single most important criterion in nearly all cases except Physician and Student. There are considerable variation among the various subgroups. Brief discussions on each of the subgroups are presented below.

#### Accountant

"Reliability" follows by a tie-breaker of "Good-after-Sales Services" and "Good Upgrade path" seems to be the most important criterion for this group. Surprisingly, "low cost" is placed in a relatively low position among the various criteria. Even so, "low cost" did score quite a high score in mean ranking (3.7) comparing to its relative position. It reflects that a wide variety of criteria will be taken into consideration by decision makers of this group of professionals.

#### Computer Professional

"Reliability", "Ease-of-Operation", "Ease-to-Read User Manuals & Training Materials" and "Good-after-Sales Services" are the most important criteria in this group. Whereas "Excellent Demonstration", "Communication Capability" and "Chinese Capabilities" are the least important consideration.



## Engineer

"Reliability", "low cost" and "Plenty of Industry Packages" are the more important criteria. Among these, "Plenty of Industry Packages" is rated higher by Engineer versus other professional groups. This possibly reflects the diversified interests exhibited by this groups of professionals. The placement of "Easy-to-read User Manuals and Training Materials" and "Good-after-Sales Services" at a relatively unimportant position reflects the relatively high technical knowledge of engineering group. But again, "Excellent Demonstration", "Communication capabilities" and "Chinese Capabilities" are among the least important criteria.

## Lawyer

"Reliability of machine", "Easy-to-read User Manuals & Training Materials" and "Good-after-Sales Services" are the more important criteria. This group gives the highest rating among all other groups in the area of "Communication Capability". This may reflect the need of the personal computer to access the law data base which can only be possibly to be stored in central computer in view of the size of the information

## Physician

"Good-after Sales Services", "Reliability of machines", "Easy-to read User Manuals & Training Materials", "Low cost" and "Good Dealer/Vendor Reputation" are the most important criteria for this group of respondents.

Of special interest, "Good Dealer/Vendor Reputation" was ranked third which is the highest ranking among all the professional groups.

#### Student

"Easy-to-read User Manuals & Training Materials", "Reliability", "Good after sales Service" and "Ease of Operations" are the more important considerations. The fact that "Good upgrade path" is of less concern to this group of respondents may possibly imply the limited scope of applications used by students. This is further supported by the less concerns on "cost" because they may be limiting their scope to those TV-game like personal computer which are less expensive in nature.

#### Teacher

"Reliability", "Ease-of-Operation" and "Easy-to-read User Manuals & Training Materials" are more important to this group of respondents. In much the same way as the other respondent groups, "Excellent Demonstration", "Communication Capability" and "Chinese Communication" are least important to them.

#### Users Versus Non-Users

Again, similar to the information search process, an analysis on the difference between users and non-users are conducted, and, the results are shown in EXHIBIT 5 and 6.



### Professional Subsample

The trend follows essentially as that displayed for the group as a whole. However, users place more emphasis on the following areas than the non-users:-

- "Ease of Operation"
- "Low Cost"
- "Good Upgrade Path"
- "Plenty of Industry Package"
- "Chinese Capabilities"

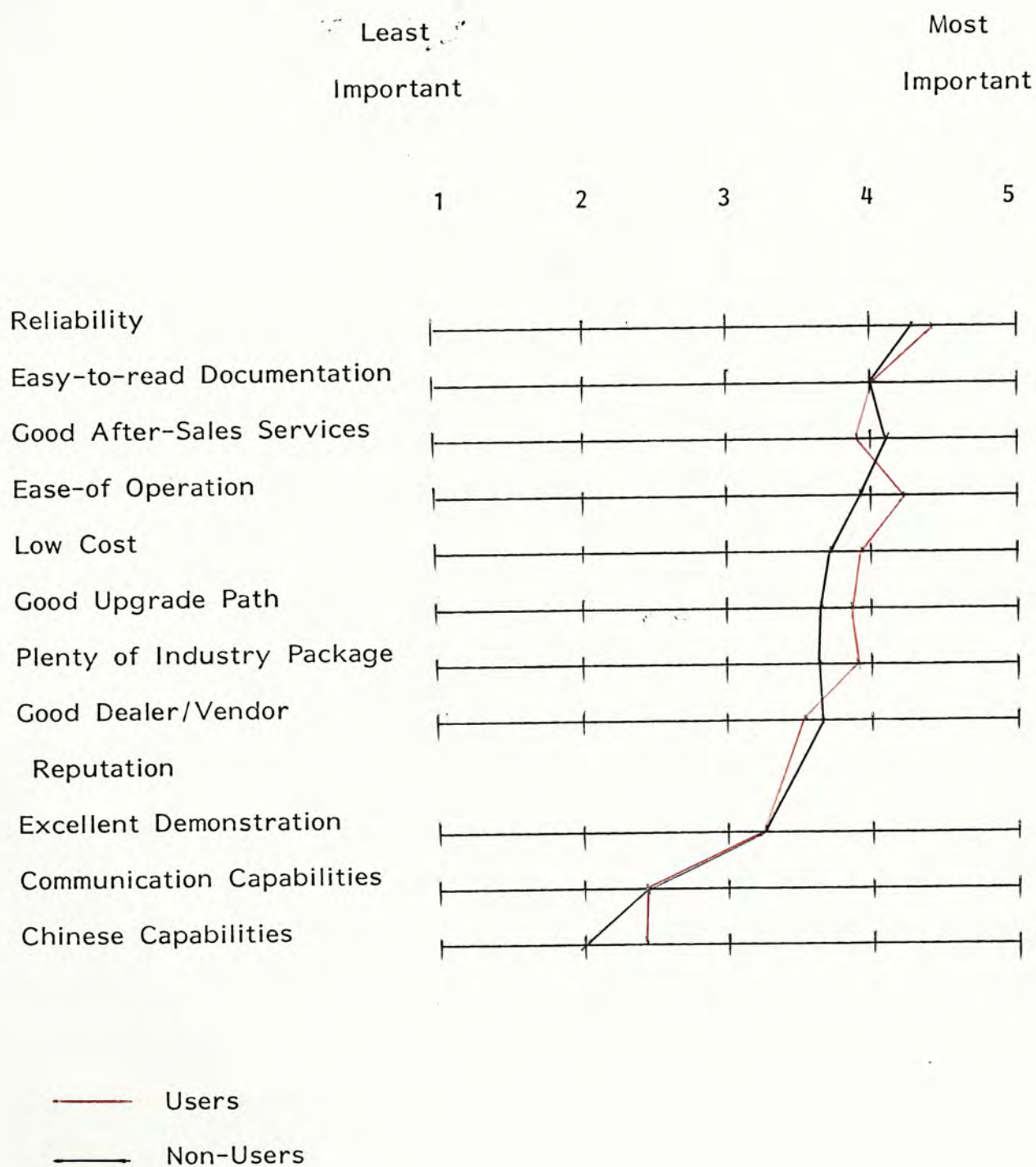
Whereas, less emphasis is placed on areas like "Reliability", "Good-after-sales Service" and "Dealer/Vendor Reputation" by the user group.

### Business Subsample

The business subsample displays a different pattern than the professional sub-sample. More emphasis were placed by the users in the following areas:-

## EXHIBIT 5

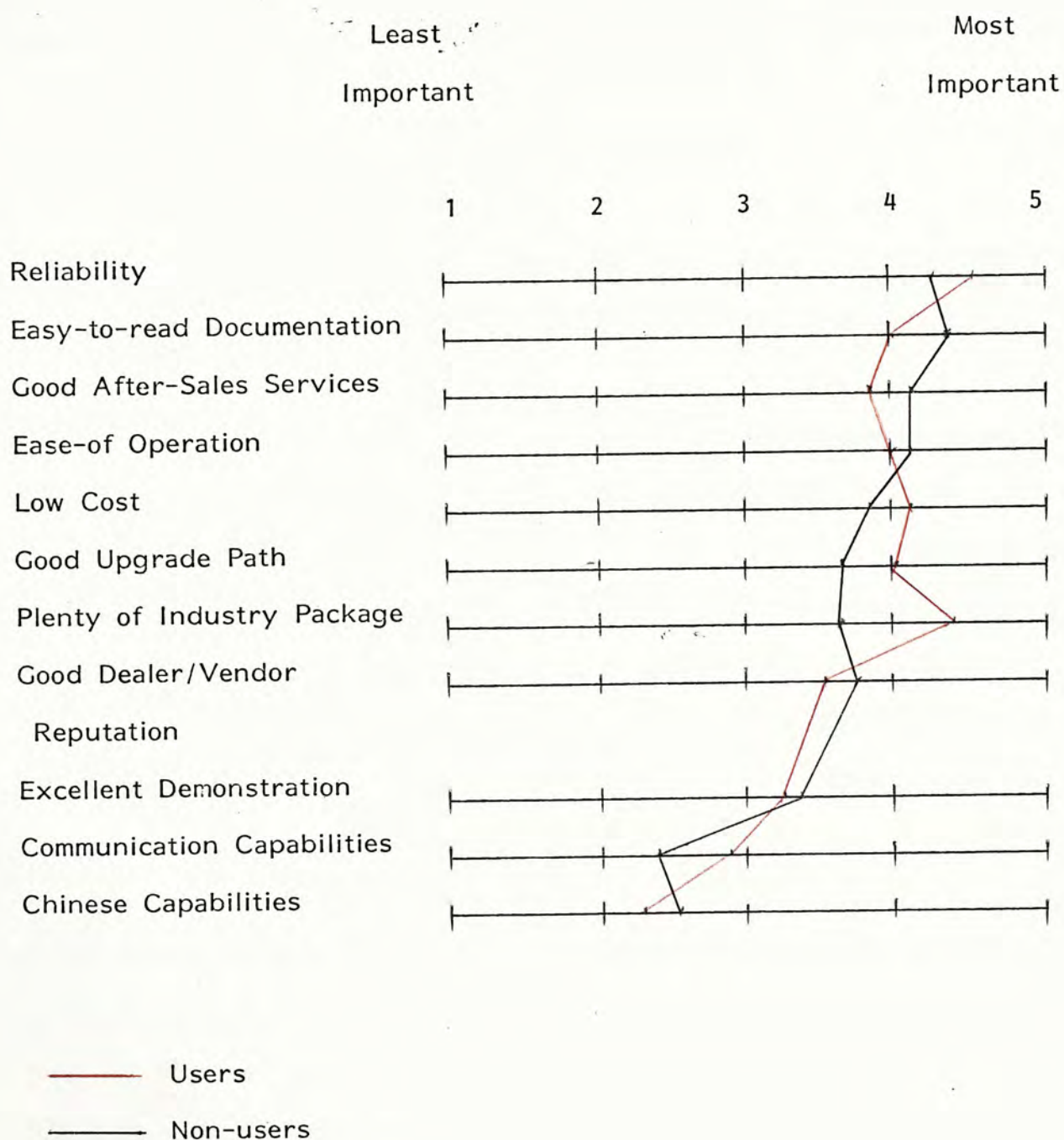
COMPARISON BETWEEN PROFESSIONAL USERS AND NON-USERS OF  
PERSONAL COMPUTERS IN PROFESSIONAL SUBSAMPLE IN THE AREA OF  
"EVALUATIVE CRITERIA"





## EXHIBIT 6

COMPARISON BETWEEN USERS AND NON-USERS OF PERSONAL COMPUTERS  
IN BUSINESS SUBSAMPLE IN THE AREA OF  
"EVALUATIVE CRITERIA"



- "Reliability"
- "Low Cost"
- "Good Upgrade Path"
- "Plenty of Industry Package"
- "Communication Capabilities"

Less emphasis is placed on areas like "Easy-to-read Documentations", "Good after Sales Services", "Ease-of-Operation", "Good Dealer/Vendor Reputation", "Excellent Demonstration", and "Chinese Capabilities".

### Comparison with Previous Study

Table 9 summarizes the comparison of the current findings with those of the findings from "The market of Personal Computers in Hong Kong"<sup>1</sup>.

As can be seen, "Reliability" remains to be the single most important criterion in both studies. The largest discrepancy between the two studies seems to be "Good After-Sales Services". It was ranking seventh in Cheung and Yee's<sup>1</sup> study whereas it was ranked third in our current study. This may have something to do with the after-sales expectation we want to get out of the vendor. The other major difference is in the "Availability of Application Package". Three years ago, it was ranked fourth but now it falls to the seventh position in our current study. Possible explanation may be due to the abundance of package available today versus three years ago. In other words, application packages are of less concerns now than before. Minor variations are also found in the area of "Ease-of- Operation" and "Sufficient Training Materials/Manuals". However, the difference is so minor that does not warrant any further discussion here.

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<sup>1</sup> Cheung, K.T., Yee, P.K. The Market of Personal Computers in Hong Kong. Hong Kong: The Chinese University of Hong Kong 1981.



TABLE 9

RANKINGS COMPARISON OF CURRENT STUDY WITH PREVIOUS STUDY  
ON EVALUATIVE CRITERIA

EVALUATIVE CRITERIA	PREVIOUS STUDY	CURRENT FINDINGS
Reliability	1	1
Ease-of Operation	2	4
Sufficient Training Materials/Manuals	3	2
Availability of Application Package	4	7
Low Cost	5	5
Upgradability	6	6
Good After Sales Services	7	3
Vendor Reputation	8	8

Benefits

Professional Subsample versus Business Subsample

There are altogether six derived benefits listed in the questionnaires to be answered by respondents. A summary of the findings for the two sub-samples and the whole sample is listed in Table 10 below:

TABLE 10

A RANKING COMPARISON BETWEEN THE PROFESSIONAL SUBSAMPLE AND  
BUSINESS SUBSAMPLE IN THE AREA OF DERIVED BENEFITS

Derived Benefits	Professional Sub-sample	Business Sub-sample	Whole Sample
Self Development	1	1	1
Increased Work Productivity	2	2	2
Entertainment	2	3	3
Family/Staff Education	4	4	4
Prestige	5	5	5
My Friends/Other Companies have one	6	6	6



Table 10 shows no difference among the two sub-samples. "Self Development" is claimed to be the most important benefit to be derived from the use of personal computer. A tie is found in the professional sub-sample on "Increased work productivity" and "Entertainment" with both benefits being placed in the second position whereas business sub-sample placed them into second and third position respectively. "Prestige" and "My friend/other companies have one" are the least important benefits as perceived by the respondents.

Exhibit 7 displays a comparison between the two sub-sample in terms of mean ranking.

Both samples show high degree of similarity in the importance of derived benefits. When taking the ranking of '3' as a cutting point, "Prestige" and "My friends/other companies have one" can be assumed to be of negligible significance when comparing with other benefits.

#### Professional Subsample

Table 11 shows the relative rankings of all the derived benefits for the various professional groups under studied. The rankings are derived from the mean scores by the various group shown in Table 12 of Appendix A.

EXHIBIT 7

MEAN RANKING COMPARISONS BETWEEN PROFESSIONAL AND  
BUSINESS SUBSAMPLES IN THE AREAS OF DERIVED BENEFITS

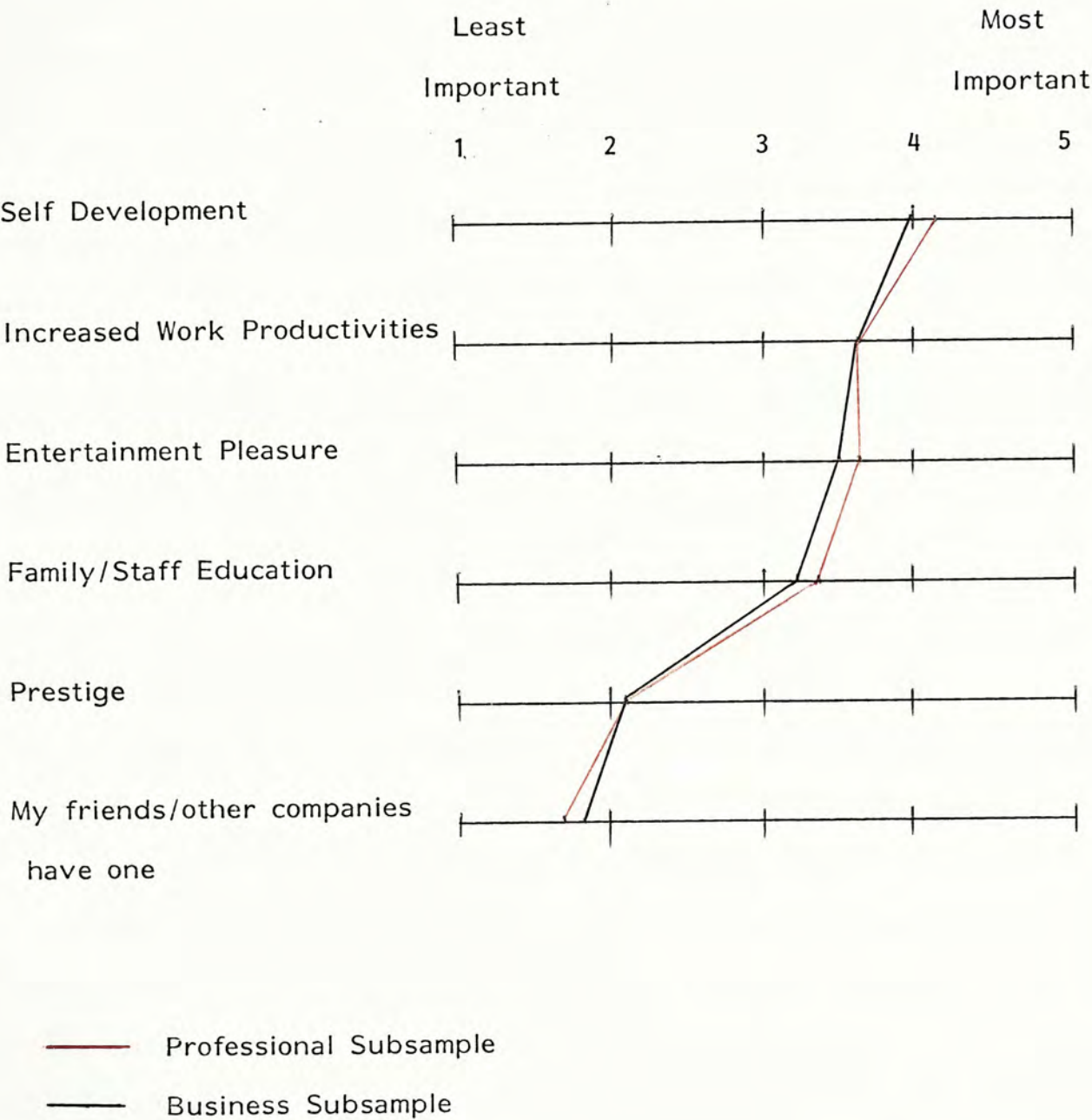




TABLE 11

RANKING OF IMPORTANCE OF DERIVED BENEFITS BY VARIOUS PROFESSIONAL SUBGROUPS

Derived Benefits	Accountant	Computer Professional	Engineer	Lawyer	Physician	Student	Teacher
Self Development	1	1	1	2	1	4	1
Increased Work Productivity	3	3	2	1	3	1	3
Entertainment/Pleasure	2	2	3	2	2	2	3
Family/Staff Education	4	4	4	4	3	3	2
Prestige	5	5	5	5	5	5	5
My friends/other Companies have one	6	6	6	6	6	5	6

Accountant, Computer Professional and Physician Subgroups

They follow essentially the same pattern of ranking in that "Self Development" is cited as the single most important benefit followed by "Entertainment/Pleasure" then "Increased work productivities". "Prestige" and "My friends/other companies have one" being the least important. This is the common feeling among all groups of respondents.

## Engineer

The engineers placed much more importance on "Self Development" (4.1) than all other factors. The second being "Increased work productivity" with a mean ranking of 3.6, and "Entertainment/Pleasure" with a score of 3.3 is the least important benefits rated above the cut-off point of 3.

## Lawyer and Student

They both placed the highest importance on "Increased Work Productivity" followed by "Entertainment and Pleasure". However, "Family Education" is placed at higher importance than "Self Development" in the case of student. The reverse is true for the lawyer group.

## Teacher

A high score of 4.5 was placed on "Self Development" by the teacher group. The first runners-up is "Family/Staff Education" with a score of 3.9 followed by a close tie between "Increased Work Productivity" and "Entertainment/Pleasure".

## Users Versus Non-users

### Professional Sub-sample

Exhibit 8 shows the difference between the 2 groups for the professional sub-sample. Users of personal computers generally placed higher importance to the following derived benefits of using personal computers:-



- "Self Development"
- "Family/Staff Education"
- "Prestige"
- "My friends/other companies have one"

However, higher importance is claimed by non-users in the perception of "Entertainment/Pleasure" benefit.

#### Business Sub-sample

Users of personal computers can better recognized the importance of all the derived benefits in the business subsample. Exhibit 9 shows the comparison.

#### Comparison with Previous Study

The result from Cheung and Yee's<sup>1</sup> study shows the following order of importance for the derived benefits.

- "Time Saving"
- "Self Development"
- "Pleasure/Entertainment"
- "Cost Saving"
- "Prestige"

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<sup>1</sup> Cheung, K.T., Yee, P.K. The Market of Personal Computers in Hong Kong. Hong Kong: The Chinese University of Hong Kong, 1981.

## EXHIBIT 8

MEAN RANKING COMPARISON BETWEEN USERS AND NON-USERS OF  
PERSONAL COMPUTERS IN AREA OF DERIVED BENEFITS  
IN THE PROFESSIONAL SUBSAMPLE

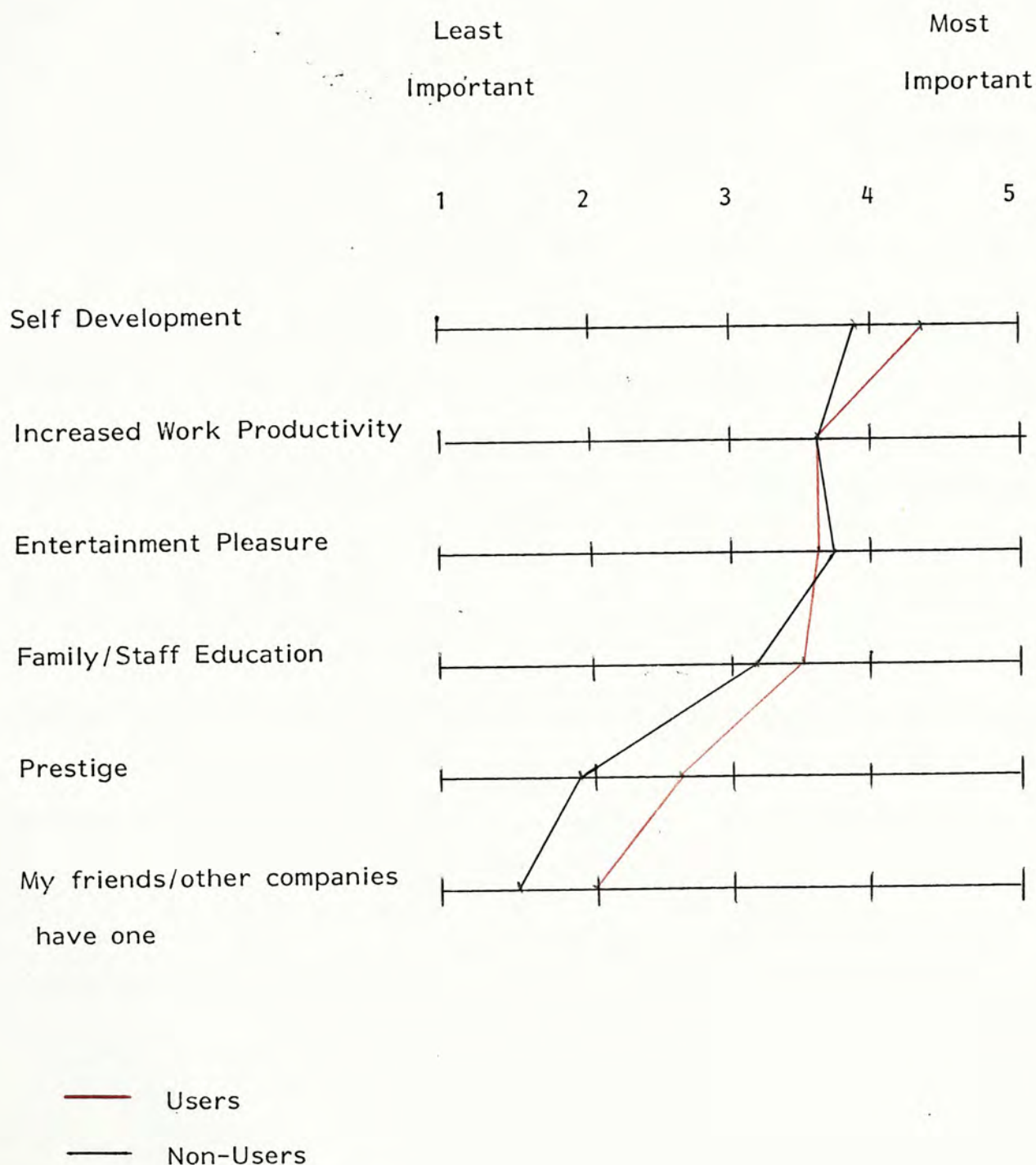
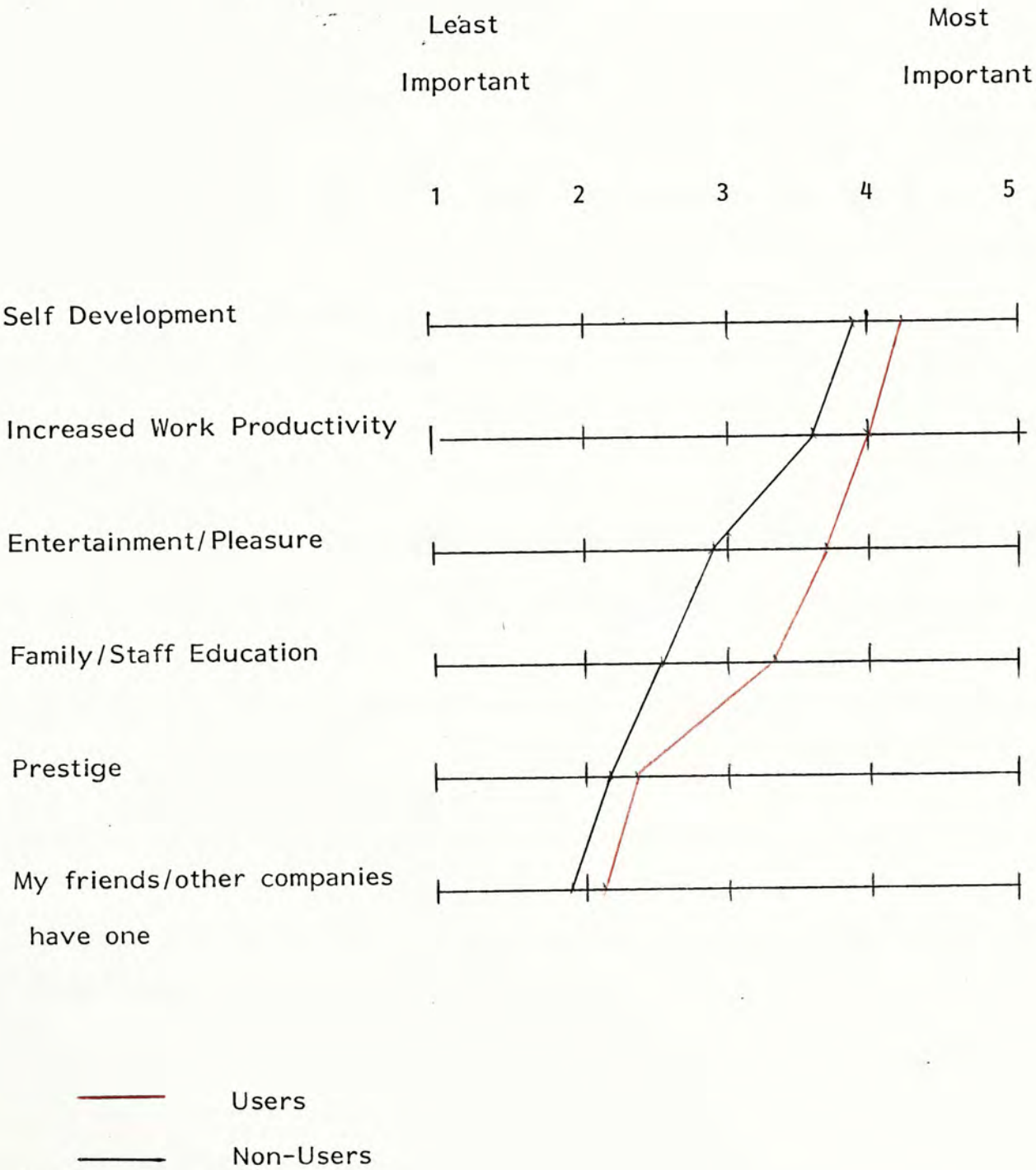




EXHIBIT 9

MEAN RANKING COMPARISON BETWEEN BUSINESS USERS & NON-USERS OF  
PERSONAL COMPUTERS IN THE AREA OF DERIVED BENEFITS  
IN THE BUSINESS SUBSAMPLE



In our study, "Self Development" is the most important benefit followed by "Productivity". We can roughly equated "Productivity" with "Time/Cost saving" of Cheung & Yee's<sup>1</sup> study. The other benefits like "Pleasure/Entertainment" and "Prestige" show agreement between the two studies.

Market Potential in the Next Three Years

Professional Subsample versus Business Subsample

Table 13 shows the percentages of respondents who intend to buy a personal computer in the next three years in the current study as well as the percentages from Cheung and Yee's study in 1982<sup>1</sup>.

TABLE 13

PERCENTAGES OF RESPONDENTS INTENDING TO BUY A PERSONAL COMPUTER  
IN THE NEXT THREE YEARS

	Current Study	1982 Study
Professional Sub-sample	57.0	37.4
Business Sub-sample	50.0	50.0
Whole Sample	55.0	38.4

<sup>1</sup> Cheung, K.T., Yee, P.K. The Market of Personal Computers in Hong Kong. Hong Kong: The Chinese University of Hong Kong, 1981.



When compare to the previous findings by Cheung and Yee in 1982<sup>1</sup>, we record significant increase in the potential. The major growth potential comes from the professionals.

#### Professional Subsample

To further understand the major growth area within the professional sub-sample, we have also summarized the percentages for each professional groups in Table 14.

TABLE 14

PERCENTAGE OF RESPONDENTS WITHIN THE PROFESSIONAL SUBSAMPLE  
INTENDING TO BUY A PERSONAL COMPUTER IN THE NEXT THREE YEARS

	----- Percentage -----	
	Current Study	1982 Study
Accountant	67.0	43.8
Computer Professional	74.0	40.9
Engineer	69.0	42.6
Lawyer	60.0	40.0
Physician	33.0	47.3
Student	33.0	25.3
Teacher	27.0	38.5

<sup>1</sup> Cheung, K.T., Yee, P.K. The Market of Personal Computers in Hong Kong. Hong Kong: The Chinese University of Hong Kong, 1981.

From Table 14, we can see that "Computer Professional", "Engineer", "Accountant" and "Lawyer" show a big growth in market potential followed by the "Student" group who displays a nominal increase in the buying motive. We also see that "Physician" and "Teacher" actually demonstrated a decline in buying potential.

Reasons for Not Buying

Professional Subsample Versus Business Subsample

Table 15 shows a comparison between the two sub-samples in response to the question on reasons for not buying a personal computer in the next three years.

TABLE 15

COMPARISON BETWEEN PROFESSIONAL & BUSINESS SUBSAMPLES  
ON REASONS FOR NOT BUYING A PERSONAL COMPUTER  
IN THE NEXT THREE YEARS

Reasons	Professionals		Business		Whole Sample	
	%	Ranking	%	Ranking	%	Ranking
No Expertise to Use	11.9	4	25.0	3	16.1	4
Awaiting Improved Technology	19.0	3	20.0	4	19.4	3
Do not need one	25.5	2	30.0	2	27.0	2
Too Expensive	9.5	5	10.0	5	9.7	5
Have one already	61.9	1	35.0	1	53.2	1



"Have one already" and "Do not need one" are the two most frequent reasons given by both sub-samples. However, in the case of the professional sub-sample, "Have one already" is quoted more than two times as frequent as the second reason, "Do not need one". It seems that cost is not of too much a concern since "Too expensive" is the least frequently quoted reason by the respondents. "No expertise to use" and "Awaiting Improved technology" are the third and fourth most frequent reasons quoted by the business sub-sample, and, fourth and third by the professionals.

### Professional Subsample

Table 16 summarizes the reasons among the various professional groups ranked in order of frequency.

#### Accountant, Computer Professional and Engineer

"Awaiting Improved Technology" is the most frequently cited reason by respondents in these professional groups as they are relatively closer to the industry to overhear "news" about new technology or products. "Have one already" is the second most frequently cited reasons for Computer professional and Engineer. Whereas Accountant cites this as the third with "Do not need one" as the second most frequent reason. In the case of the other two groups, this is the third most frequent reason. All three subgroups regard "Too Expensive" and "No Expertise to use" as the least important reasons.

TABLE 16

RANK IN ORDER OF FREQUENCY ON REASONS OF NOT  
BUYING A PERSONAL COMPUTER IN THE NEXT THREE YEARS  
AMONG THE PROFESSIONAL SUBGROUPS

Reasons	Account- tant	Computer Profess- ional	Engi- neer	Lawyer	Physi- cian	Student	Teacher
No Expertise to Use	4	4	3	4	4	2	3
Awaiting Improved Technology	1	1	1	1	3	5	5
Do not Need One	2	3	3	4	2	2	2
Too Expensive	4	4	3	1	5	1	4
Have One Already	3	2	2	1	1	2	1

Lawyer

"Awaiting Improved Technology", "Too Expensive" and "Have one already" are cited with equal frequency. There is no incident where "No Expertise to use" and "Do not Need One" are cited as reasons.

Physician

"Have one Already" is the most frequently cited reason reflecting the high usage in this responding group. This is followed by "Do not Need One", "Awaiting Improved technology" and "No expertise to Use" in order of frequency. "Too Expensive" is never cited as a reason.



## Student

"Too Expensive" is the most frequently quoted reason. This seems to contradict the previous findings on evaluative criteria in which cost is not considered as important. "Have one Already", "Do not Need One" and "No Expertise to Use" are all quoted equally as the second most frequent reason. "Awaiting Improved Technology" is never cited as a reason.

## Teacher

"Have one Already" is followed by "Do not Need One", "No Expertise to Use" and "Too Expensive". No mention is there on "Awaiting Improved Technology".

## Comparison with Previous Study

Table 17 summarizes the comparison of our current findings with Cheung and Yee's findings in 1982.

Table 17 shows a big difference between our findings and Cheung & Yee's findings. "Possessing One Already" has moved up from the last position to the first position in our study. Our second most frequently cited reason of "Do Not Need One" has moved down from the number one position in Cheung and Yee's study. "Awaiting Improved Technology" has also moved down from the second position, and "Too Expensive" drops two places to the fifth in our study. Only "No expertise to use" keeps her position in both studies.

TABLE 17

COMPARISON ON RANKING IN FREQUENCY OF BEING CITED  
AS REASONS OF NOT BUYING BETWEEN CURRENT AND PREVIOUS STUDIES

	----- Current Study	Ranking	----- Previous Study
Do Not Need One	2		1
Awaiting Improved Technology	3		2
Too Expensive	5		3
No Expertise to Use	4		4
Possessing One Already	1		5

### Decision Structure

Because of the ambiguities of the answers to the questionnaires, interpretation of result from the two questions are meaningless. We have, therefore, decided not to analyse results from these two questions.

### Brand Name Possession and Brand Switching Behavior

Table 18 shows the brand names given by the respondents to the questionnaires.



TABLE 18

BRAND NAME OF PERSONAL COMPUTER POSSESSED BY THE RESPONDENTS

	Professionals Sub-sample	Business Sub-sample	Whole Sample
Apple or Apple alike	62	19	81
IBM PC	-	7	7
Wang	5	-	5
NEC	4	-	4
Casio	3	-	3
Banana	3	-	-
CPU6502	1	-	1
	--	--	---
	78	26	104
	==	==	===

Brand Switching Behavior

Table 19 shows the brand switching behavior reported by the respondents. It illustrates a very interesting phenomon. 76.9% of all current users will recommend their brands to other people. However, only 23.1% of them will buy the same brands themselves in the future.

TABLE 19

## BRAND SWITCHING BEHAVIOR

%	----- Intended Behavior -----	
	Will Recommend To Others	Will Buy The Same Brand
Professional	79.5	20.5
Business	69.2	30.8
Whole Sample	76.9	23.1



## CHAPTER IV

### ANALYSIS AND INTERPRETATION OF FINDINGS

#### Information Search

Table 20 & 21 of Appendix C show the results of the F-tests on the information sources among various sub-samples. The followings are summary of the analysis:-

#### Professional Subsample Versus Business Subsample

Both groups are very similar in the source of information at a confidence level of 95 percents. This means that the two groups agree on the sources for information in the process of buying a personal computer.

#### Professional Subsample

After conducting the test of independence, there are no significant differences among the group in the areas of "Newspaper" and "Dealer Display Centers". However, differences among groups are discovered in the areas of "Your Friends", "Television" and "Trade Magazine". Each of them is discussed in the following sessions.

## "Your Friends"

Another F-test of independence is conducted on the sub-samples within the Professional group. It is discovered that Computer Professional, Lawyer, Physician, Student and Teacher show no significant difference in this attribute. ( $F = 2.266$  and probability of occurrence is 0.936). Engineers relies more on personal friend as information source than all the other people, whereas accountants regard friends as a less important source than all others. As a whole, this is regarded by the respondents as the most important source of collecting information on personal computers .

## "Television"

Although Lawyer and Student regard this as a more important source than other people, this is the least important source of information as a whole. The other sub-samples show no significant difference ( $F = 0.687$  and probability = 0.374) in regarding this as an unimportant vehicle of information collection.

## "Trade Magazine"

All except Students show no significant difference in opinion in regard to "Trade Magazine" as a mean to collect personal computer information ( $F = 1.445$  / probability = 0.791). Students single out themselves in regarding this as a less important means than others.



## Overall

Although there are some difference within the professional groups, they do tend to refer to the personal sources like "Your Friends" and "Dealer Display Centers" as more credible. The impersonal media like "Trade Magazines", "Newspaper" and "Television" are less affective although they are able to reach a large population.

## Users and Non Users

### Business Group

The users and non-users do not differ in opinion with respect to the information sources as can be seen from Table 21 of the Appendix C.

### Professional Group

Both users and non-users tend to concur except in the area of "Your Friends". The users tend to find "Your Friends" as a much more important source of information than the non-users. This seems to contradict with our common sense in that inexperience people would like to seek for advice from other experience people more. However, a deeper thought tells us that the users tend to group together. They will exchange information among each other. This is being reflected through the result of our survey. However, both the users and non-users regard personal friends as the most important medium in collecting product information.

## Evaluative Criteria

### Professional Subsample Versus Business Subsample

Table 22 of Appendix C shows the F-test of sample independence between the two samples. The result of the test shows no significant difference between the two samples.

#### Professional Subsample

The same table (Table 22 of Appendix C) also displays the F-test results for sub-samples within the Professional Group. All, except "Reliability of Machines", reflect difference among the various subsamples. Each of the areas with difference in opinion is further detailed below.

#### "Good After-Sales Services"

Apart from the Engineer subsample, all show agreement in the ranking of importance on this particular criterion. Table 24 of Appendix C shows the result of F-test for the six sub-group besides the Engineers. The reason of regarding After-sales Services as less important by the Engineering group seems obvious. They possess the skill to repair the personal computers instead of relying on vendors.

#### "Good Dealer/Vendor Reputation"

Two groups of opinion are revealed through the test. Computer Professional, Engineer, Lawyer and Student cluster together and place less importance in the criterion of "Good Dealer/Vendor Deputation" than the other sub-groups, who form another small cluster themselves. Table 24 (Appendix C) shows the F-test results.



## "Easy-to-read User Manuals & Training Materials"

The Students sub-group places a more emphasis in this criterion than all other sub-groups. This is understandable because students tend to place more regard on the reading materials than others, which are the routine of their everyday life. The homogeneity among the other six sub-group can be seen from the result of the F-test listed in Table 24 of Appendix C.

## "Excellent Demonstration"

The group of four (Accountant, Lawyer, Student and Teacher) places most emphasis on this criterion followed by Engineer and Physician who form a group of themselves. Computer professional places the least emphasis in the area. This distribution can be explained by the level of technical aptitude with regard to the personal computers. Demonstration is a marketing tool that is more appealing to the less technically sophisticated people than those like Computer professional and Engineer. Many Physician who have been using personal computers in their clinics put themselves higher in the technical aptitudes, which, means less reliance on demonstrations.

## "Good Upgrade Path"

The group of two (Accountant and Teacher) places more importance in this respect than the group of Computer Professional, Engineer, Lawyer, Physician and Student.

### "Low Cost"

Accountant, Computer Professional, Engineer, Physician and Teacher place more weight in this area than the Student and Lawyer. The possible explanation is that the Student tend to purchase cheaper personal computers within their budget, and, therefore have less concern than others. The Lawyer, who is believed to be more wealthy people, do not consider personal computers as an expensive items.

### "Ease-of Operation"

Students and Teachers are more concerned than the other sub-samples in the ease-of-operation aspect. The others place less weight in this area. The possible explanation is that the industry packages are designed to be used by these latter professionals in their own respective professional applications. They will only use the personal computers in their respective areas of which they are familiar. For Student and Teacher, they tend to go into other areas of applications which are new to them. Ease of operation is relatively more important to them when they are operating an alien program.

### "Industry Package Availability"

Physician is the only sub-group that does not go together with other sub-groups. They regard this as less important. This may be due to the fact that they only interest in their own application. So long as they know there are packages available in their area, they would be comfortable.



## "Communication Capabilities"

The general feeling is low in this area. Engineer and Physician being the lowest among the other sub-groups. Because of the low emphasis, there seems to be no practical use to further elaborate in this area.

## "Chinese Capabilities"

Student and Teacher placed relatively higher regard in Chinese requirement than the others. However, this is generally regarded as an unimportant area to the respondents as a whole.

## Users and Non-Users

### Business Group

The users and non-users sub groups show difference in opinion in the area of "Plenty of Industry Application Program Available". The users regard this as significantly more important than their counterparts. This can be explained by the fact that users tend to explore into new application packages once they begin to use personal computers. Looking into new and additional packages seems to be natural to them.

### Professional Group

The users place more emphasis on the "Chinese Capability" than the non-users. Apart from this, there are no significant difference between the two.

## Benefits

Tables 25 and 26 (Appendix C) display the results of the F-test on sample independence among the various sub groups.

### Professional Subsample Versus Business Subsample

The two do not differ in opinion except in the area of "Entertainment/Pleasure" and "Family/Staff Education". In both areas, the professional subsample claims a higher importance than its counterparts. This can be explained by the fact that the professional users do use computer for personal use more.

### Professional Subsample

The seven sub-groups show no significant difference in opinion with regard to "Prestige", "Increased work Productivity", and "Family/Staff Education". However, they do differ in the areas of "Self Development", "My friends have one" and "Entertainment/Pleasure".

#### "Self Development"

A test of independence revealed that Accountants, Computer Professional, Engineer, Lawyer, Physician and Teacher show no difference in their opinion in this aspect ( $F = 1.031$  and probability = 0.599). The Students sub-group distinct itself by placing a significantly lower emphasis than the others. This is possibly due to the reason that self-development is more important to non-students sub-groups who, unlike the student who is studying, may have higher concerns in developing themselves.



"My friends have one"

The F-test reveals two clusters among the seven sub-groups. The larger of the two consists of Accountant, Computer professional, Engineer, Lawyer and Teacher showing higher emphasis than Physician and Student. However, all give a very low importance to this area.

"Entertainment/Pleasure"

Accountant, Lawyer and Student regard this as more important than the other groups. Explanation to this phenomenon is relatively difficult to give with the current information. Nevertheless, this is quite an important benefit for the respondents as a whole.

#### Users and Non-users

Table 26 of Appendix C summarizes the findings from the F-test of sample independence.

#### Business Groups

There is no significant difference between the two groups of business respondents.

## Professional Groups

"Self Development", "Prestige" and "My friends have one" are the areas where the professional users and non-users differ in opinion. Professional users regards "Self Development" as more important possibly imply that they do feel that personal computer can help more in their "Self Development". "Prestige" and "My friends have one" (which are similar in nature) are also given more importance by the users group. This may reflect that the owners of personal computers do feel good about themselves when comparing to other non-users.

### Market Potentials Within The Next Three Years

Question 4 of our questionnaire indirectly asks for the market potential of personal computers in the next three years. Confidence intervals for the various sub-samples have been constructed and presented in Table 27 of Appendix C. This, together with Tables 1 and 2 of Chapter I, can be used to estimated the market potential of the next three years.

The estimation on market potential for the next three years is done and presented in Table 28 (Appendix C). As can be seen, the potential estimates of 61,000 units present an attractive market for the personal computer marketeers in Hong Kong.



### Reasons for Not Buying

Comparing with the previous study, we can see that there are relatively more users of personal computers in the current study. This indirectly make "Have one already" a more common reason for not buying. This is exactly reflected in our current study. With more people thinking of buying a personal computer within the next three years, those left behind would really do not have genuine need for personal computers. This is also reflected in our current study. The more genuine reasons for not buying ("Have one already" and "Do not need one") are frequently quoted. This would imply less chance to further improve the potential as estimated in the previous session.

### Brand Switching Behavior

The interesting brand switching behavior as illustrated in Chapter III is worth talking here. The 76.9% of current users, who will recommend their existing brand to others, may give us some insights into the role they will be playing as "opinion leaders". As revealed earlier, "Your Friend" is regarded as the most important source of information search. It is, therefore, desirable to motivate these current users to spread the good things about their current computers, or indirectly sell the computers through them.

However, only 23.1% of users would buy the same brand themselves in the future. There seems to be a big discrepancy between the two. The possible reasons are the users are undergoing a dissonance reduction process whereby they have to justify to others and themselves that they have made a right decision in buying the computers. This may not necessarily imply that they find the existing computer desirable.



In this area of personal computing, brand switching is as easy as a consumer product because of the compatibility of software among brands. It seems natural that we should do something to persuade the existing users to stay with the existing brands that they have. This will give marketers at least two benefits:-

- i) Existing user's credibility as an opinion leader increase if they upgrade their personal computer or purchase an additional computer of the same brand
- ii) There will be revenue from upgrading the computers owned by existing users.

### An Overview

Starting with the objective of the research in Chapter one, we have gone through the technicality of methodology in chapter two. Survey Findings, its analysis and interpretation are listed in their very details in both Chapter III and IV. These bits and pieces of information, though systematically organized, cannot by themselves be used as input in formulating marketing strategies. So, we have "validated" the information gathered by getting practicing marketers opinion and synthesize the data by deduction. Implications of the survey findings are transformed into recommendations, which are readily applicable strategies, as concluded in the last chapter.



## CHAPTER V

### INTERVIEW FINDINGS

Two individuals from one local companies and one international company were interviewed. The local company is Dodwell Business Computer Division who has been a personal computer dealer for several years. The gentleman we have interviewed is Mr. Frank To, who is the manager of the division. The other international company is a well-known manufacturer of personal computer. We were asked by the interviewee not to disclose her name. However, her personal computer is one of the most marketable brands in the local and international market place. In Hong Kong, they have set up an extensive dealer network and have proven to be quite successful from the past few years' experience. The interview findings are consolidated below.

#### Information Search

They agreed that personal sources are more important than the impersonal media. However, they tend to have different opinion in regard to high importance placed on "Your Friend". The possible explanation is that the respondents of our survey are mainly talking about low-price personal computers designed mainly for home use. For higher price ones, "Dealer Display Centers" should be equally important as "Your Friends", if not more. This will be even more obvious in the business sector. The dealer representatives will be more knowledgeable in this area to better satisfy information need of the prospects.



In the areas of "Trade Magazines", "Newspaper" and "Television", they mentioned that even though these have been ranked as less important, it may play a significant role in the early stage of drawing attention. These are most effective in delivering a simple message to a very large audience.

### Evaluative Criteria

Depending on the customers, there may be different evaluative criteria. For business prospects, the commonly quoted criteria are "Reliability", "Ease-of-use", "Industry package availability", and "low cost". For individuals, "Low cost", "Reliability of Machines" and "Industry Package Availability" are more common. Things like "Easy-to-read user manuals/training materials", "Good after sales services", "Good dealer/vendor reputation" and "Excellent demonstration" are less motivating factors than the others. Our guests consider these as qualifying factors. The more important criteria would be the determining factors.

Different prospects will have different evaluative criteria mix even within same general categories of professionals. Also, within the same mix of criteria, priority for each of them would differ. So it is important to understand the individual customer's evaluative criteria so that sales can be successfully closed. There are, however, many cases in which the prospects will not know their own evaluative criteria. It is the job of the salesman to shape their customers' perceptions so as to make it in line with their own products.



### Benefits

Personal benefits like personal education/entertainment are likely to be quite important in the professionals and the smaller business firms. They tend to agree that gimmicks like "Prestige" are less important than other benefits. The genuine benefits in terms of work productivity, development, and entertainment are the more important benefits. However, personal reasons like prestige do play an important role behind all these "presentable" benefits.

### Market Potential in the Future

Both interviewers are fully confident in the future of the market. New product introduction will continue to be one of the prime moving force of the market. The earlier part of 1984 has already seen the introduction of portable computers, touch-screen technology, image processing, integration with mainframes etc. These will greatly enhance the useability of the personal computers and, further increase the market potential.

In the business area, personal computers have become a very important role in the Office Automation area. Personal Computers will be used for standalone processing to solve personal matters as well as participating as terminals for appointment schedules, electronic mail and word processing.

It has been a common belief among the two that more and more people will be using personal computers for their everyday decision making. The penetration power would be like desktop calculators in the early 70s.

All these factors combined will point to the fact that personal computers market potential is big in the coming few years.



## CHAPTER VI

### CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

##### Business Sub-sample

In the process of information search , impersonal sources are less important as considered by this group of respondents. Among the personal sources, "Your Friends" is ranked more important than "Dealer Display Centers". However, the difference between the two is not too big. Although we believe "Your Friends" is a more credible source, dealer representatives are more knowledgeable on the subject to give the prospects appropriate information to help solving their problems.

In evaluating the suitability of personal computers, our business respondents place higher importance in areas like reliability, easy-to-read user manuals and training materials, good after-sales service and ease-of-operation. This does not mean that the others are not important. In fact, cost, upgrade path, industry packages, dealer/vendor and demonstrations are all regarded as important by the respondents.

The important benefit areas that our respondents claim from the use of personal computers are self development, productivity, entertainment and staff education in respective order of importance. These are the more genuine benefits among the list that are included in the questionnaires.



Although the more intangible benefits like "Prestige" and "Other companies have one" are not rated important, we do believe they would play a role in the final decision.

About half of the respondents claimed that they will buy a personal computer in the next three years. Considering the size of population, we estimate that this group will contribute about 36,000 units to the total market potential.

Among those that do not response positively to the question on purchase intention, "have one already" and "do not need one" are the more frequently quoted reasons. These are considered as the more genuine reasons. Looking at other reasons, which are more or less an "excuse", they also appear quite frequently. The group quoting "no expertise to use", "awaiting improved technology" and "Too expensive" as reasons can be developed to become potential buyers.

About 65% of respondents reported that they already have personal computer(s) installed. 73.9% of these companies will recommend the brand they are using to others, and, only 38.5% of them will buy the same brand for themselves.

#### Professional Sub-sample

Professionals behave in similar way as business companies in various aspects. Advise from friends is ranked much more important than dealer display when comparing with business communities. We think that this may be because of the limited scope of application in the professionals. Their friends can well serve their purpose of information need.



Professionals evaluate personal computers in much the same way as the business counterpart. Reliability is the most important factor. Easy-to-read user and manuals and training materials, good after-sales services and ease-of-operation all rank second after reliability.

Again, professionals share the same feelings as the business subsample in the benefit realization area. The more tangible benefits are ranked more important than intangible ones.

About 57% of respondents from the professional subsample claims that they will buy a personal computer in the next three years. An estimates of about 25,000 units potential can be estimated from this sector within the next three years. "Have one already" is the dominant reason quoted by those not intending to buy a personal computer in the next-three years. The quoted frequency for the other factors are much less implying that converting these professionals to potential buyers are much more difficult.

About 38% of respondents from the professional subsample reports that they already have personal computers installed. About 77% from this group will recommend their existing brands to other people, but, only 23% of them will buy the same brand in the future.

### Professional Groups

Different professional groups differ in their importance rankings in using friends, television and trade magazine as sources of information collection. The difference in opinion is even more drastic in the area of



evaluative criteria. Different professional groups have different opinions in all areas but reliability. Self development, my friends have one and Entertainment/pleasure are the areas in derived benefits that professionals do not have homogeneous opinion.

### Users and Non-users

Users and Non-users of both professional and business subsamples do not differ much in their opinion in most areas. The only areas that they do have a difference in ideas are listed below:-

- Information Search: "Your Friends" for professionals
- Evaluative Criteria: "Industry Package Availability" for business  
"Chinese Capability" for professionals
- Derived Benefits: "Self Development", "Prestige" and  
"My friends have one" for professionals

### Recommendations

#### Product Strategies

Reliability should be one of the most important considerations in the new product design. Building a product with less components through improved chip or circuitry technologies can score high in reliability. With a reliable product, the chance of machine failure would, therefore, be less. This will translate into low maintenance or repair cost, which is part of the operating cost of acquiring a personal computer (another important criterion of the respondents).

Ease-of-operation and learning is another key feature to be built into the product. Being highly ranked by prospects as evaluative criterion, scoring high in this area would increase the chances of being selected among competitive products.

Both the need of professional and business customers should be considered in the product line design. Individual professionals with simple requirements should be given a cheap product with less features being enough to meet their basic requirements. Sophisticated features like communications, Chinese capabilities, Local Area Network etc are more likely to be required only in the business communities. These should be built into the higher end of the product line design mainly for the business firms. Capabilities of upgrading from the low end to the high end should be included because there are chances that the machines may serve different purposes at different time according to change of need.

### Pricing Strategies

Since low cost is a key concern to most of the respondents, a highly competitive pricing strategy is crucial to customer acceptance. However, there is no point to price so low as to make the business totally unprofitable. An alternative strategy is to price the entry system low enough to attract sufficient interest. After the customers have installed the initial system, efforts should be placed to upgrade machines for the existing users. Higher price can then be charged to cover the profits foregone initially.



## Promotion Strategies

Although television, trade magazine and newspaper is a less important means of information search, it is, however, the quickest and most effective way to make the product known to a large group of potential buyers. Therefore, it is our recommendation that the initial product launch should be done through these mass media. This can be in the form of advertising or publicities. Delivery of simple messages like "IBM Compatible" should be the key objectives of these campaigns. Also, the media should also assume the role of interest attraction, and invite the prospect to contact the dealers or vendors for further information.

In particular, we also understand that majority of our potential customers will refer to their friends for information. Also, existing users do like to talk about their own machines to other people. We also recommend the marketers to reinforce the post-purchasing evaluation of existing users through tools like formation of user meetings or groups. Through this kind of activities, existing users can share their applications experience of the machine with other users, thereby, sharing innovative use experience of the systems within the group. This will build a stronger brand loyalty within the users as well as promoting the machine to the target customers through their word of mouth favour. Equipping them with new development of the machines enhances their experience base resulting in increased credibility in front of their friends.

## Channel Strategies

Dealers Network should be established to market the personal computers instead of selling directly through the manufacturers. This is because of the amount of efforts required in market coverage. The



manufacturers usually have more important things to care about. Existing dealer in the field can do a better job.

Dealer display centers with machines ready to demonstrate the applications should be the primary place to sell the products. This is especially so for sales to professionals or individuals. It should be treated as off-the-shelf items aiming to sell the products to the customers once they have tried and like it. Good arrangement with financing or leasing companies should be established to enable instalment payments for the products.

A different approach may be applicable to the business communities, however. Although the display centers will still be one of the primary market places, visiting the companies to understand the requirements is also very key. Thing like use of personal computer in business operation, office automation, integration with the firms' data processing system etc are also very important knowledge the dealers should have in marketing to these customers. Although it requires comparatively more presale work than selling to professionals, the sales are usually more substantial.

Another program the manufacturers should encourage is the development of packages for local industry applications. Cooperating with or encouraging local "software houses" to develop package should be done. This can be in the form of regular contacts with local software companies by providing them the necessary technical skills to develop packages. Manufacturers should also encourage them to market their products as well. Selling their packages would also mean selling your product. Oftentime, packages are the real determining factor of the sales.



## Sales Force Strategies

Because of the technical requirements of marketing the products to the professionals and business firm, the salesmen should be equipped with proper product knowledge. However, since customers would unlikely be technical data processing professionals, speaking in their language would be one of the prime determining factors. In other words, the sales person should be given the right balance of technical and industry training.

On selling skills, personal selling techniques are very important to both the professional and business prospects. However, it may be more so in the case of professionals. It is because there is very little strong business need for the professionals to buy a personal computers. Understanding the psychology behind the individuals, and, using the appropriate selling skills should be the key to the close of a sales.

In the case of business prospects, the sales-person need to understand the business concerns of the companies and creatively apply their products to meet the business requirements. Relatively higher level of business and technical knowledge is required on the sales person on top of the basic selling techniques.

## Purchasing Behavior Model

The findings and recommendations described above can be further interpreted according to the Engel, Kollat and Blackwell's<sup>1</sup> Multimediation model of consumer behavior shown below:-

### The Decision Process

- i) Problem Recognition - marketers can induce the perception of the need of personal computers in the target buyers through advertising in mass media like television, trade magazine and newspaper. Anxiety for buying personal computers can also be reduced through their friends who have a personal computer. Thus, formation of user groups can help to influence or "initiate" the need for such.
- ii) Alternative Evaluation - if the external stimulus is strong enough, it may trigger the prospect to look for alternatives. Evaluation of the alternatives is dependent on the information that the individual has. This can either be stored in the individual or acquired from external. In either case, promotion strategy of marketers play a very important role. The message or information delivery through the promotional program can either trigger the individual to purchase their products or store the information in their favor for future retrieval.

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<sup>1</sup> Engel, J.F., Kollat, D.T. Blackwell, R.D. Consumer Behavior.

Illinois: Dryden Press, 1973, P.58



To accomplish this, the media strategy as recommended above can be employed. To make the picture completed, the message delivered should be geared to the evaluative criteria as revealed from this current study. Understand that individual will have different - weights assigned to each criteria, the general categories identified in this study can be used to tune the target buyers to view favourably towards the brand. Individual favors can be introduced through personal sources of information like Dealer display centers and friends in form of product user groups.

- iii) Purchasing Process - the likely outcome of the evaluation is to initiate a purchasing process. Unfortunately, the study cannot provide valuable information of the decision structure. However, some insights derived from the study can be applied to help putting marketers into more advantageous position. The marketers need to staff with salesperson who can push the customers into making decision. Oftentime, even the prospects have done all the information search and evaluation, they need somebody to push them to make decision. This is where salesmanship can come into place. The ability to corner the prospects and close the sales is the critical factor in the whole process. This echos with our previous recommendation presented above in the balance of training on sales techniques and technical knowledge. Technical knowledge is required for impressive demonstration and building of customer confidence.

- iv) Outcome and post purchasing behavior - hopefully, the outcome of the whole process is the purchase of the particular brand. Even though the prospects do buy the brand, there is still a lot to do in order to maintain the continual survival of the marketers. Since word-of-mouth is an effective means of spreading the brand name, something has to be done to either reinforce the decision or reduce any potential dissonance. The formation of user groups as recommended above is definitely one way of doing this. The increased knowledge base of the user can put the marketer's brand into more favorable evaluation for future purchase. Furthermore, the marketers can benefit when these users are consulted by other new users in their external search of information.



APPENDIX A

TABLE 5

MEAN RANKING ON IMPORTANCE OF INFORMATION SOURCES

MEAN RANKING*					
	Your Friends	Dealers	Trade Mag	Newspaper	TV
Professional					
Accountant	3.7	3.8	3.3	2.3	1.5
Computer Professional	4.0	4.2	3.8	2.3	1.5
Engineer	4.8	3.9	3.6	2.7	1.6
Lawyer	4.4	3.7	3.5	2.5	1.9
Physician	4.3	4.0	3.1	2.3	1.3
Student	4.2	3.5	1.8	2.2	2.0
Teacher	4.6	3.8	3.4	2.0	1.5
Professional Subsample	4.2	3.9	3.3	2.3	1.5
Business Subsample	4.1	4.0	3.3	2.4	1.6
Whole Sample	4.2	3.9	3.3	2.4	1.6

APPENDIX A

TABLE 8

MEAN RANKING ON EVALUATIVE CRITERIA AMONG  
THE VARIOUS PROFESSIONAL SUBGROUPS

	Account- tant	Computer Professional	Engineer	Lawyer	Physician	Student	Teacher
Good After Sales Services	4.2	3.9	3.6	4.2	4.4	4.5	4.3
Good Dealer/ Vendor Reputation	3.9	3.5	3.3	3.3	4.1	3.3	3.7
Easy-to Read User Manuals & Training Materials	4.1	3.9	3.7	4.2	4.1	4.7	4.4
Excellent Demo	3.5	2.4	3.1	3.9	3.0	4.0	3.6
Good Upgrade Path of Machine	4.2	3.5	3.6	3.6	3.6	3.0	4.3
Low Cost	3.7	3.8	4.2	2.9	4.1	3.2	4.3
Ease of Operations	4.1	4.0	3.9	3.9	3.8	4.5	4.6
Reliability of	4.6	4.3	4.6	4.5	4.25	4.5	4.9
Plenty of Industry Applications Programs Available	3.9	3.7	4.0	3.5	3.0	4.2	3.9
Capable of Communications to Central Computer	2.8	2.3	1.9	3.2	1.9	2.7	3.0
Chinese Capabilities	2.1	2.0	1.9	2.3	2.1	2.7	2.7



## APPENDIX A

TABLE 12


MEAN RANKING ON DERIVED BENEFITS BY VARIOUS  
PROFESSIONAL SUBGROUPS

	Account- tant	Computer Professional	Engineer	Lawyer	Physician	Student	Teacher
Self Development	4.4	4.0	4.1	4.0	4.2	3.3	4.5
Prestige	1.9	2.0	2.0	2.3	2.2	2.2	2.3
My Friends/ Other Companies have one	1.6	1.5	1.8	1.6	2.1	2.2	1.6
Increase Work Productivity	3.8	3.4	3.6	4.1	3.3	4.2	3.6
Entertainment/ Pleasure	4.0	3.7	3.3	4.0	3.4	4.0	3.6
Family Staff Education	3.3	3.3	2.9	3.6	3.3	3.7	3.9

## APPENDIX B

## EXHIBIT 10

QUESTIONNAIRE VERSION 1 - PROFESSIONAL


 THE CHINESE UNIVERSITY OF HONG KONG 香港中文大學

SHATIN · NT · HONG KONG · TEL. 0-633111 · CABLE ADDRESS · SINOVERSITY · 香港新界沙田 · 電話：〇 · 六三三一壹一

 研究院工商管理學部  
 Division of Business Administration  
 Graduate School

EXT. 782

 學生專題研究用箋  
 Student Research Projects

Dear Sir/Madam,

The advent of modern technology has brought about a lot of changes to our daily life. A recent example is the personal computer which usually composes of a video display station, a keyboard, a cassette/diskette for data storage, and, a printer. Typically, such a personal computer sells for HK\$5,000 to as much as HK\$60,000 depending on capabilities.

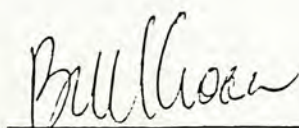
In an attempt to understand your attitude as a professional/entrepreneur towards personal computers, we have designed the following questionnaire for your kind completion. We believe the questionnaire is straight forward and will take no more than 5 minutes of your time.

We are prepare to share our findings with you by sending you a summary of our result if you are interested (please refer to the last question).


Upon completion, please return the questionnaire using the enclosed paid envelope.

Thank you for your assistance upon which the success of the study relies.

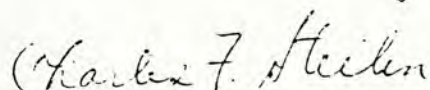
Yours faithfully,



WILLIAM KWAN



OFILIA TANG



CHARLES F. STEILEN

Senior lecturer - Marketing



## Personal Computers Survey Questionnaire

### Instruction

For Question 1 to 3, please circle the degree of importance.  
(1 : least important; 5: most important)

1. If you want to obtain information to purchase a personal computer for your company, where will you go to?

Least Important			Most Important	
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

Your friends  
Television  
Trade magazines  
Newspaper  
Dealer display centers  
Others (Please specify)

---



---

2. How important are the following features of a personal computer to your buying decision?

Least Important			Most Important	
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

Good after sales service  
Good dealer/vendor reputation  
Easy-to-read users manuals and training materials  
Excellent demonstrations  
Good upgrade path of the machines  
Low cost  
Ease of operation  
Reliability of machines  
Plenty of industry applications/ programs available  
Capable of communication to central computers  
Chinese capability  
Others (Please specify)

---



---

3. What benefits do you expect to get from a personal computer?

Least Important			Most Important	
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

Self development  
Prestige  
Other companies have personal computer(s)  
Increase work productivity  
Entertainment/pleasure  
Staff education  
Others (Please specify)

---



---

4. Will your company buy a personal computer in the next three years?

\_\_\_\_\_ Yes \_\_\_\_\_ No

If YES, got to QUESTION 6.

5. Please state the reasons for not buying.

_____ No expertise to use	_____ Too expensive
_____ Waiting for improved performance/cost	_____ Have one already
_____ Do not need one	_____ Others (Please specify)
	_____
	_____

6. Does your company have a personal computer?

\_\_\_\_\_ Yes \_\_\_\_\_ No

If NO, go to QUESTION 12.

7. What is the brand name(s) of the personal computer in your company?

\_\_\_\_\_

8. Who is the most frequent user(s) of the personal computer in your company?

\_\_\_\_\_

9. Who decided to buy the personal computer(s) in your company?

Title:

\_\_\_\_\_

10. Will you recommend the same brand(s) of personal computer to other companies?

\_\_\_\_\_ Yes \_\_\_\_\_ No

11. If your company will buy another personal computer in the future, will your company buy the same brand?

\_\_\_\_\_ Yes \_\_\_\_\_ No

12. Thank you for your valuable response. If you want to receive a summary of our findings, please fill in your personal information below.

NAME : \_\_\_\_\_

ADDRESS : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## APPENDIX B

## EXHIBIT 11

## QUESTIONNAIRE VERSION 2 - BUSINESS



THE CHINESE UNIVERSITY OF HONG KONG 香港中文大學

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研究院工商管理學部  
Division of Business Administration  
Graduate School

EXT. 782

學生專題研究用箋  
Student Research Projects

Dear Sir/Madam,

The advent of modern technology has brought about a lot of changes to our daily life. A recent example is the personal computer which usually composes of a video display station, a keyboard, a cassette/diskette for data storage, and, a printer. Typically, such a personal computer sells for HK\$5,000 to as much as HK\$60,000 depending on capabilities.

In an attempt to understand your attitude as a professional/entrepreneur towards personal computers, we have designed the following questionnaire for your kind completion. We believe the questionnaire is straight forward and will take no more than 5 minutes of your time.

We are prepare to share our findings with you by sending you a summary of our result if you are interested (please refer to the last question).

Upon completion, please return the questionnaire using the enclosed paid envelope.

Thank you for your assistance upon which the success of the study relies.

Yours faithfully,

WILLIAM KWAN

OFILIA TANG

CHARLES F. STEILEN

Senior lecturer - Marketing



Personal Computers Survey Questionnaire

Instruction

For Question 1 to 3, please circle the degree of importance.  
(1 : least important; 5: most important)

1. If you want to obtain information to purchase a personal computer for your company, where will you go to?

Least Important			Most Important	
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

- Your friends
- Television
- Trade magazines
- Newspaper
- Dealer display centers
- Others (Please specify)

2. How important are the following features of a personal computer to your buying decision?

Least Important			Most Important	
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

- Good after sales service
- Good dealer/vendor reputation
- Easy-to-read users manuals and training materials
- Excellent demonstrations
- Good upgrade path of the machines
- Low cost
- Ease of operation
- Reliability of machines
- Plenty of industry applications/ programs available
- Capable of communication to central computers
- Chinese capability
- Others (Please specify)

3. What benefits do you expect to get from a personal computer?

Least Important			Most Important	
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

- Self development
- Prestige
- My friends have one
- Increase work productivity
- Entertainment/pleasure
- Family education
- Others (Please specify)



4. Will you buy a personal computer in the next three years?

\_\_\_\_\_ Yes \_\_\_\_\_ No

If YES, got to QUESTION 6.

5. Please state the reasons for not buying.

_____ No expertise to use	_____ Too expensive
_____ Waiting for improved performance/cost	_____ Have one already
_____ Do not need one	_____ Others (Please specify)
	_____
	_____

6. Do you have a personal computer?

\_\_\_\_\_ Yes \_\_\_\_\_ No

If NO, go to QUESTION 12.

7. What is the brand name of your personal computer?

\_\_\_\_\_

8. Who is the most frequent user(s) of the personal computer in your home?

\_\_\_\_\_

9. Who decided to buy the personal computer?

\_\_\_\_\_

10. Will you recommend the same brand of personal computer to your friends?

\_\_\_\_\_ Yes \_\_\_\_\_ No

11. If you will buy another personal computer in the future, will you buy the same brand?

\_\_\_\_\_ Yes \_\_\_\_\_ No

12. Please tick your profession.

_____ Accountant	_____ Physician
_____ Computer Professional	_____ Student
_____ Engineer	_____ Teacher
_____ Lawyer	
_____ Others (Please specify)	_____

13. Thank you for your valuable response. If you want to receive a summary of our findings, please fill in your personal information below.

-----

NAME : \_\_\_\_\_

ADDRESS : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

APPENDIX C

TABLE 20

RESULTS OF F-TEST ON "INFORMATION SOURCES" ON PROFESSIONAL SUBSAMPLE  
AND BUSINESS SUBSAMPLE

Information Search	Professionals Vs Business			Among Professionals		
	F	Prob	Ho	F	Prob	Ho
Your Friends	0.160	0.309	A	5.293	1.000	R
Television	0.287	0.401	A	2.558	0.979	R
Trade Magazine	0.092	0.244	A	9.959	1.000	R
Newspapers	0.385	0.457	A	1.533	0.832	A
Dealer Display Centers	0.246	0.374	A	1.537	0.833	A

- Key:-
- F: Computed F-ratio
- Prob: Probability of occurrence of the computed F-ratio
- Ho: F-test at 95% confidence level of the hypothesis that there are relationships exist on the information search among/between samples
- A: Ho accepted
- R: Ho Rejected



APPENDIX C

TABLE 21

RESULTS OF F-TEST ON "INFORMATION SOURCES" BETWEEN USERS AND NON-USERS

Information Search	Professionals Vs Business			Among Professionals		
	F	Prob	Ho	F	Prob	Ho
Your Friends	0.049	0.190	A	18.179	1.000	R
Television	0.188	0.330	A	1.334	0.752	A
Trade Magazine	0.208	0.345	A	2.490	0.888	A
Newspapers	0.025	0.151	A	0.223	0.358	A
Dealer Display Centers	0.642	0.566	A	0.387	0.458	A

Key:-

- F: Computed F-ratio
- Prob: Probability of occurrence of the computed F-ratio
- Ho: F-test at 95% confidence level of the hypothesis that there are relationships exist on the information search process among users and non-users
- A: Ho accepted
- R: Ho Rejected

APPENDIX C

TABLE 22

RESULTS OF F-TEST ON "EVALUATIVE CRITERIA" PROFESSIONAL SUBSAMPLE  
AND BUSINESS SUBSAMPLE

Evaluative Criterion	Professionals Vs Business			Among Professionals		
	F	Prob	Ho	F	Prob	Ho
Good After Sales Services	0.009	0.114	A	3.021	0.992	R
Good Dealer/ Vendor Reputation	0.115	0.268	A	2.613	0.982	R
Easy-to read User Manuals and Training Materials	2.686	0.902	A	3.868	0.999	R
Excellent Demonstration	0.397	0.463	A	9.163	1.000	R
Good Upgrade Path of the Machine	0.002	0.086	A	6.197	1.000	R
Low Cost	0.323	0.422	A	6.822	1.000	R
Ease-of Operation	0.099	0.251	A	3.421	0.997	R
Reliability of Machines	0.213	0.350	A	1.739	0.887	A
Plenty of Industry Application Programs Available	0.095	0.248	A	2.330	0.966	R
Capable of Communicating to Central Computer	0.021	0.143	A	5.474	1.000	R
Chinese Capability	1.517	0.783	A	2.287	0.963	R

- Key:
- F: Computed F-ratio
  - Prob: Probability of occurrence of the computed F-ratio
  - Ho: F-test at 95% confidence level of the hypothesis that there are relationships exist on the "Evaluation Criteria" among/between samples
  - A: Ho accepted
  - R: Ho Rejected



## APPENDIX C

TABLE 23

RESULTS OF F-TEST ON "EVALUATIVE CRITERIA" BETWEEN USERS AND NON-USERS

Evaluative Criterion	Professionals Vs Business			Among Professionals		
	F	Prob	Ho	F	Prob	Ho
Good After Sales Services	0.646	0.568	A	0.659	0.577	A
Good Dealer/ Vendor Reputation	0.479	0.500	A	0.446	0.488	A
Easy-to read User Manuals and Training Materials	2.298	0.866	A	0.028	0.157	A
Excellent Demonstration	0.065	0.211	A	0.010	0.117	A
Good Upgrade Path of the Machine	1.353	0.749	A	1.857	0.829	A
Low Cost	0.685	0.582	A	2.553	0.893	A
Ease-of Operation	0.119	0.270	A	3.282	0.932	A
Reliability of Machines	1.105	0.700	A	0.043	0.182	A
Plenty of Industry Application Programs Available	4.895	0.969	R	2.657	0.899	A
Capable of Communicating to Central Computer	2.445	0.878	A	0.004	0.097	A
Chinese Capability	0.630	0.562	A	4.544	0.968	R

Key:

F: Computed F-ratio

Prob: Probability of occurrence of the computed F-ratio

Ho: F-test at 95% confidence level of the hypothesis that there are relationships exist on the "Evaluative Criteria" among/between samples

A: Ho accepted

R: Ho Rejected



APPENDIX C

TABLE 24

RESULTS OF F-TEST ON "EVALUATIVE CRITERIA" FOR SELECTED SUB-GROUPS  
WITHIN THE PROFESSIONAL SAMPLE

Evaluative Criterion	Sub-group Analysed	F	Prob	Ho
Good After Sales Services	Except Engineer	1.574	0.831	A
Good Dealer/Vendor Reputation	1) Computer Professional/Engineer/Lawyer/Student	0.420	0.257	A
	2) Accountants/Physician/Teacher	0.831	0.557	A
Easy-to-read User Manuals and Training Manuals	Except Students	1.765	0.879	A
Excellent Demonstration	1) Accountant/Lawyer/Student/Teacher	1.402	0.755	A
	2) Engineer/Physician	0.171	0.317	A
Good Upgrade Path	Computer/Engineer/Lawyer/Physician/Student	2.128	0.921	A
Low Cost	1) Accountant/Computer Professional/Engineer/Physician/Teacher	1.704	0.849	A
	2) Lawyer/Student	1.865	0.825	A
Ease of Operation	1) Accountant/Computer Professional/Engineer/Lawyer/Physician	0.424	0.207	A
	2) Student/Teachers	0.522	0.520	A
Industry Package Availability	Except Physician	0.909	0.523	A
Communication Capabilities	Accountant/Computer Professional/Student/Teacher	2.290	0.920	A
Chinese Capabilities	Accountant/Computer Professional/Engineer/Lawyer/Physician	0.541	0.291	A

Key:

- F: Computed F-ratio
- Prob: Probability of occurrence of the computed F-ratio
- Ho: F-test at 95% confidence level of the hypothesis that there are relationships exist on the "Evaluative Criteria" among/between samples
- A: Accepted Ho



APPENDIX C

TABLE 25

RESULTS OF F-TEST ON "BENEFITS" ON PROFESSIONAL SUBSAMPLE  
AND BUSINESS SUBSAMPLE

Information Sources	Professionals Vs Business			Among Professionals		
	F	Prob	Ho	F	Prob	Ho
Self Development	0.120	0.273	A	3.296	0.996	R
Prestige	0.358	0.442	A	0.562	0.238	A
My Friends/Other Companies have one	2.544	0.892	A	2.276	0.962	R
Increased Work Productivity	0.375	0.452	A	1.854	0.910	A
Entertainment/Pleasure	5.347	0.979	R	2.335	0.967	R
Family/Staff Education	5.196	0.978	R	1.879	0.915	A

- Keys:
- F: Computed F-ratio
- Prob: Probability of occurrence of the computed F-ratio
- Ho: F-test at 95% confidence level of the hypothesis that there are relationships exist on the "Derived Benefits" among/between samples
- A: Ho Accepted
- R: Ho Rejected

APPENDIX C

TABLE 26

RESULTS OF F-TEST ON "BENEFITS" BETWEEN USERS AND NON-USERS

Information Search	Users Business			Versus	Non-Users Professionals		
	F	Prob	Ho		F	Prob	Ho
Self Development	0.291	0.401	A		4.129	0.959	R
Prestige	0.251	0.375	A		4.342	0.964	R
My Friends/Other Companies have one	0.129	0.280	A		11.517	0.999	R
Increased Work Productivity	0.759	0.607	A		0.004	0.093	A
Entertainment/Pleasure	3.586	0.937	A		0.110	0.263	A
Family/Staff Education	2.487	0.881	A		1.452	0.772	A

Keys:

- F: Computed F-ratio
- Prob: Probability of occurrence of the computed F-ratio
- Ho: F-test at 95% confidence level of the hypothesis that there are relationships exist on the "Derived Benefits" among/between samples
- A: Ho Accepted
- R: Ho Rejected



## APPENDIX C

TABLE 27

## PROPORTION OF POTENTIAL BUYERS FOR VARIOUS SUBSAMPLES

Sub-samples	Proportion who will buy in next 3 years		
	Mean	Lowest*	Highest*
Accountant	0.6667	0.4903	0.8146
Computer Professional	0.7391	0.5887	0.8574
Engineer	0.6875	0.4999	0.8390
Lawyer	0.6000	0.3604	0.8091
Physician	0.3333	0.1560	0.5533
Student	0.3333	0.1727	0.5282
Teacher	0.2727	0.1069	0.5023
Business Firm	0.5000	0.3380	0.6620

\* Key: Lowest and Highest proportions are the confidence intervals based on 95% confidence level.

APPENDIX C

TABLE 28

ESTIMATES OF MARKET POTENTIALS FOR THE NEXT THREE YEARS

Subsample	Population Size	Market Potential Estimates		
		Mean	Lowest	Highest
Accountant	8,000	5,334	3,922	6,517
Computer Professional	1,500	1,109	883	1,286
Engineer	5,000	3,438	2,500	4,195
Lawyer	1,200	720	432	971
Physician	3,400	1,133	530	1,881
Student	36,000	12,000	6,217	19,015
Teacher	3,800	1,036	406	1,909
Professional	58,900	24,770	14,890	35,774
Business Firm	71,991	35,996	24,333	47,658
Total	130,891	60,766	39,223	83,432

Notes:     Market potential estimates based on a confidence intervals of 95%  
              confidence level



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